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EDUCATIONAL
TELECOMMUNICATIONS

**Massachusetts
Corporation for
Educational
Telecommunications**

University Park at MIT
38 Sidney Street
Suite 300
Cambridge, MA
02139-4135

Tel: 617/251-0200

Message from the Chairman

On behalf of the Board of Directors of the Massachusetts Corporation for Educational Telecommunications (MCET), I am pleased to submit the Corporation's Annual Report for the 1990 fiscal year.

*FY90 was an important year for MCET. In April of 1989, the Corporation filed with the Governor and the General Court a comprehensive Five Year Plan - **Distance Learning for the Commonwealth's Future** - for the development of a statewide educational telecommunications network. Despite enormous fiscal pressures facing the state, the legislative leadership and Governor Dukakis again demonstrated courage, farsightedness, and a deep commitment to the Commonwealth's future by appropriating and approving for Fiscal Year 1990 increased funds which have enabled MCET to actually create the first elements of a distance learning network pursuant to our Plan.*

As previously reported to you, the proposed network will play a vital role in helping to address the state's critical need for improved education in an increasingly technical and professional economic environment. It will provide students, teachers, and workers throughout Massachusetts with greater access to high quality learning resources.

*FY90 saw the establishment of a carefully defined mission statement, the selection of a new Executive Director, the adoption of the term **The Mass LearnPike** to more graphically depict the mission of the Corporation, and the filling by the Governor of most existing vacancies on the Board of Directors and Advisors, the effect of which has been to create sufficient leadership and resources with which to accomplish our mission, and to superintend the funds granted to us in the most cost-effective manner. Most importantly, the Corporation has moved from a phase which has been characterized by investigation and expectation to one that may now be characterized as implementation and production.*

Among the Corporation's major goals has been the application for, and the receipt of, a Star Schools Federal grant. A grant of almost \$5 Million Dollars for the first year of a two year grant will soon be announced following a national competition. The receipt of this grant demonstrates that the Corporation has the administrative, academic, and technical skills necessary to attract support on a competitive basis not only to serve the needs of the citizens of this Commonwealth, but to "export" the resources it develops.



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The Corporation's activities in FY90 have further been characterized by

- *unparalleled cooperation among all interested agencies of State government*
- *the formation of advisory groups*
- *cooperation with legislators and interaction with local communities and schools*

This is all with a view towards insuring that we serve the educational needs of the Commonwealth as perceived by those who best understand them, and it is in a way that supplements and augments the work of others who are dedicated to educational excellence.

We look forward to meeting even greater numbers of our goals in the years to come and to providing Massachusetts with a public corporation which embodies the best sense of public/private and public/public cooperation and which is dedicated to the cost-efficient provision of distance learning services.

On behalf of all of us, thank you for your support.



Richard J. Snyder, Chairman
September 27, 1990



FISCAL YEAR 1990

ANNUAL REPORT

The Massachusetts Corporation for Educational Telecommunications (MCET) is a quasi autonomous public corporation of the Commonwealth of Massachusetts established by Chapter 560 of the Acts of 1982. MCET's newly defined mission (1990) is "to improve the quality of education, and to make education more effective and information more accessible, by using the most advanced communications technologies, MCET will establish and operate a statewide telecommunications system in order to enhance the economic environment and promote the general welfare of citizens of the Commonwealth."

OVERVIEW - FISCAL YEAR 1990

The year 1990 for MCET has seen new leadership and an ambitious set of goals articulated by the Board of Directors, Advisory Council, Executive Director and Staff, and set in motion during the fiscal year. Most important was the initiation and the inauguration of a statewide satellite network, the Mass LearnPike, in fifty cities and towns.

GOALS-1990

The Board of Directors, Advisory Council, and staff agreed upon a set of goals to guide MCET in setting a systematic process for the immediate implementation of a multi-technology network for Massachusetts schools. These goals included:

- *Identifying a constituency and determining their needs*
- *Offering quality services*
- *Linking with other organizations/institutions*
- *Achieving financial stability*
- *Contributing to educational research*

SOME 1990 MILESTONES

We have reached our goal of enrolling 50 Mass LearnPike members in the Mass LearnPike. A satellite dish was interpreted as a "downlink." Using the availability of cable it has been possible to serve multiple schools in a community. In that way MCET has maximized the use of its fifty satellite dishes to transmit to over four hundred schools in the Commonwealth. A list of cities and towns is included as **Appendix 1**. Thirty-five satellite dishes have already been installed.

Public openings have been held in Cambridge, Framingham, Chelsea, and Watertown. Legislators, town, and school officials have been invited to participate. Included in each opening was an opportunity for high school students from two disparate communities to meet and get to know each other via satellite. Additional openings will take place regularly throughout the year.

An extensive selection of quality services and programs have been offered without charge to K-12 schools in subscribing cities and towns. These are outlined in **Appendix 2**.

Over one hundred fifty hours of local production, using Massachusetts organizations, institutions, and resources have been planned in teacher training and enrichment. (See **Appendix 3** for list of local program offerings)

The inauguration of local production took place on September 13, a tour through the Soviet Space Exhibit at the Museum of Science. Students throughout the Commonwealth asked questions from their schools of the Soviet Space scientists and museum personnel. Over 2,000 students participated in this "electronic field trip."

With the commitment and leadership exercised by the Legislature, and the recognition of the cost effectiveness and equity of distance learning, the MCET budget for FY '91 is \$2.4 million. This will enable MCET to add an additional one hundred cities and towns to the Mass LearnPike.



We have unofficial word that our Star Schools proposal has been accepted for funding at a level of \$4,913,000 for the first year of a two year proposal. With a total federal appropriation of \$14,600,000 Massachusetts will receive 1/3 of the total funds. This is a middle school science research project that will provide MCET with a broadcast studio, and examine multi-technology in fifty schools in seven northeast states (thirty-five in Massachusetts).

MCET has relocated its headquarters at 38 Sidney Street, Cambridge. These facilities are appropriate for a state educational technology agency, situated among numerous academic and technology institutions and corporations.

Two major articles for important publications have been completed and accepted, one in a special Distance Learning publication of the United State Department of Education, the other in the Annals of Political and Social Science.

Numerous articles about MCET and the Mass LearnPike have appeared in local publications. The change from no name recognition to public awareness is a reality. A new logo was introduced and an information package is available.

A seven minute videotape, "Linking With the Mass LearnPike" has been produced and is loaned, upon request, to communities and organizations.

Presentations have been made in the four regional offices of the State Department of Education about the Mass LearnPike to education staff and to town representatives of each area.

A collaborative purchase and transmission of the PBS Restructuring Education series with the Massachusetts Department of Education allowed the series, live and on tape, to be available to teachers and administrators.

BOARD OF DIRECTORS AND ADVISORY COUNCIL

In FY90 Emerson College President Allen Koenig stepped down as Chairman of the Corporation.

Attorney Richard J Snyder Vice Chairman became Chairman, and was elected at the June FY90 Annual Meeting.

Other resignations included Helen A. Donahue, Vincent J. Mara, Frederick D. Royal, and Charles C. Tretter. John R. Silber's term expired.

Franklyn G. Jenifer left the State, David C. Knapp stepped down as President of the University of Massachusetts, and Grady Hedgespeth resigned as Secretary of Economic Affairs. These ex-officio board seats were assumed by Randolph Bromery, Joseph Duffey, and Alden Raine respectively.

New Board appointments by Governor Dukakis were Joseph McDonough, attorney, Paul Weller, President of Framingham State College, Anne Bailey-Berman, president of Chadwick, Martin and Bailey, Jon Westling, Acting President of Boston University, Dr. Sandra Spooner, Assistant Superintendent of Cambridge Public Schools, and Albert Roderick of the Massachusetts Association of School Committees.

(See Appendix 4, Board of Directors and Advisory Council FY90)

ANNUAL AUDIT

MCET has retained the firm of Gorsey and Wall to conduct the annual audit. The audit showed no significant control deficiencies. In addition, the state Auditors Office is presently conducting an audit.

Appendix 1

Mass LearnPike Members

Amesbury
Arlington
Avon
Bedford
Boston
Braintree
Brookline
Cambridge
Central Berkshire
Chatham
Chelsea
Dedham
Dover-Sherborn
Easton
Fairhaven
Fall River
Framingham
Harwich
Holyoke
Hudson
Hull
Leominster
Lexington
Malden
McCann Technical

Medfield
Middleborough
Nantucket
Newton
Norwood
Pittsfield
Plymouth-Carver
Provincetown
Quincy
Randolph
Revere
Rochester
Salem
Shrewsbury
Stoneham
Sutton
Wachusett Regional
Watertown
Wayland
Wellesley
Westborough
Westford
Westwood
Winthrop
Worcester

Mass LearnPike
Public School Membership Fees

Network Access Fee: (one time only)	\$ 2,000
Each Additional Site: (classroom package)	\$ 1,500
(phone only)	\$ 250
School District Membership Fee: First year	none
Second and Third years	\$ 1,000/yr

Mass LearnPike
Membership Benefits

The following lists the costs that would be incurred by an individual school system for the equipment and services provided to Mass LearnPike members during the 1990-91 school year. Each of the items listed below are benefits included with Mass LearnPike membership.

Description	Retail Cost
Satellite antenna:	
Midwest Saturn 3.1 (manufactured by Vertex), includes installation	\$ 9,000
Maintenance contract for satellite equipment	\$ 500
Sharp 27 in. TV/monitor	\$ 799
Sharp VCR (VC-A610U)	\$ 579
Adjustable TV Table	\$ 204
Wireless Telephone/Speakerphone (AT&T)	\$ 250
TI-IN Network program access	\$ 3,500
SCOLA (Dependent on student enrollment) Ranges from, e.g.: 1000 or fewer students to 10,000 students	\$ 750 \$ 5,625

Total	\$15,882 - \$20,757
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Note: Not included are the costs associated with programs and services that are being developed for Mass LearnPike members for the 1990-91 school year, since these services are not otherwise available.

THE UNIVERSITY OF CHICAGO

THE UNIVERSITY OF CHICAGO
CHICAGO, ILLINOIS
JANUARY 1964

THE UNIVERSITY OF CHICAGO

THE UNIVERSITY OF CHICAGO
CHICAGO, ILLINOIS
JANUARY 1964

THE UNIVERSITY OF CHICAGO

CHICAGO, ILLINOIS

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Appendix 2

Mass LearnPike Programs and Services

MCET serves three major functions related to Mass LearnPike programs and services.

1. As a **clearinghouse**:
 - A. Provides subscriptions to Satellite Learning Program and Resource Guide. Network liaisons will receive this publication four times per year. Comprehensive issues are published in Spring and Fall, with supplementary updates in Summer and Winter.
 - B. Sends periodic mailings about specific events and resources.
 - C. When the Mass LearnPike develops a telecomputing capacity, information about programs and services will also be available through the computer network.
2. As a **broker**, MCET will purchase and/or offer discounted rates for programs and services from other distance learning networks. For example, during the 1990-91 school year, Mass LearnPike members have access to:
 - A. **SCOLA** (Satellite Communications for Global Learning) retransmits live or near-live news and cultural programming 24 hours daily from 30 countries in more than 20 languages. Mass LearnPike schools will have the rights to use any or all of this programming in the classroom and to transmit SCOLA programs to homes in their communities on local cable television channels **at no cost**. This programming illustrates values and styles in other cultures, and is most applicable for foreign language and social studies classes.
 - B. The **TI-IN Network** is one of the largest distance learning networks in the country, offering 20-22 high school courses, and 200 hours of staff development and student enrichment programming. Mass LearnPike schools can use all staff development and student enrichment programming **at no cost**, and will be eligible to enroll students in any course by registering and paying the per student fee. These fees are: \$290 per student, per semester for foreign language and science courses, \$240 per student, per semester for other high school courses.
 - C. MCET has discussed possible network arrangements with **STEP**, a distance learning network operating from Spokane Washington, and with **Oklahoma State University ASTS** for statewide access to programming and per student fee discounts (respectively). Please let MCET know if your system is interested in any services offered by these or other networks.

3. As a **developer** MCET will create programs and services for Mass LearnPike schools. Attached is a list of suggested programs under development for the Fall 1990. Network liaisons will receive more detailed information and schedules for this programming soon. As the network membership develops, MCET will initiate several processes to identify future programs and services. For example:
- A. An annual assessment of members will identify needs of Mass LearnPike schools that can be met through the Mass LearnPike.
 - B. MCET has submitted a proposal to the U.S. Department of Education, Star Schools Program, which focuses on improving science curriculum for middle grades. If successful, the grant will expand the network, and provide funds to develop and adapt existing resources for environmental and space science curriculum, using multiple technologies including satellite, video disk, and computer-based telecommunications. This proposal represents the first effort to seek funding for program development. Other such initiatives are in the planning stages.
 - C. Many schools have expressed interest in using the network to share resources among members. In the fall, MCET will initiate a process to identify such in-state resources for staff development and student instruction.
 - D. Industry involvement in the Mass LearnPike is critical to its future growth and stability. MCET has initiated discussions with representatives from the cable television, telephone and broadcast industries to expand the technical capacity of the network among schools, homes and businesses, and to increase the range of programs and services available to the entire school community.
 - E. The Program Advisory Committee, composed primarily of teachers from Mass LearnPike schools, will guide the development of Mass LearnPike programs.

Appendix 3

MASS LEARNPIKE PROGRAMS 1990 - 1991

The Mass LearnPike is a network system that brings distance learning programs produced by outstanding educators from Massachusetts and around the world to the school community. Among the services available through the network are up to 50 different high school courses, hundreds of hours of interactive staff development programs, and dozens of special events each year. Members will regularly receive schedules and specific information about these services, and any applicable associated costs.

In addition, during this early stage of network development, MCET will offer services developed specifically for its members, at no additional cost. For example,

Scheduled Programs:

Soviet Space: An Interactive Tour: *On September 13, 1990, the Mass LearnPike commenced operation with this one-hour interactive teleconference from the Museum of Science, Boston. Middle and high school students throughout the state had an opportunity to "visit" the first international Soviet Space exhibition and discuss concepts related to space exploration.*

Sports plan: *Beginning October 3, 1990, Mass LearnPike students will participate in a 9 week goal-setting course for 4-6th grade students. Based on the successful model implemented at all grade levels in Boston, this course includes sessions taught by professional and well known sports personalities. It includes a teacher training teleconference, telephone office hours for teacher consultation, and extensive printed materials including curriculum, teacher handbooks and student activity books.*

Devoted to Science: *A five week teacher training series for elementary school teachers conducted by the Boston Museum of Science will begin October 11, 1990. The objective of this series is to help 4-6th grade teachers to use hands-on science classroom activities. Teachers will participate in each interactive session, using science materials purchased from the Museum. The materials fee also includes classroom materials for each activity for 30 students.*

My Town: *A monthly interactive program featuring student-produced curriculum project videotapes from member school systems will begin October 29, 1990.*

Library Resources: *Beginning January 31, 1991, this weekly interactive teleconference series for Mass LearnPike teachers and librarians will review new print, computer software, videodisc, and AV materials.*

Artists in Electronic Residence: *Three 5 week residencies through which artists will engage students with different artforms. During the 1990 - 1991 school year, artists will include a poet, fabric artist and*

Mass Performance: *A series of five interactive performances which will focus on ethnic traditional and contemporary dance. For the 1990 - 1991 school year the series will include dance forms from: the Afro World, the Caribbean, Western Europe (ballet), India and contemporary dance from Eastern and Western cultures*

Other series being developed for the 1990 - 1991 school year include:

- a teleconference series for school boards developed with Education Development Center*
- a 5 week language teacher series "France Today" developed with the French Library*
- a 5 week student series on contemporary French culture also developed with the French Library*
- Two 5 week courses "Scientists in Electronic Residence", developed with the Museum Institute for Teaching Science (MITS)*
- Tropical Rain Forest Exhibit developed with the Boston Museum of Science*
- Music Exhibit developed with the Boston Museum of Science*
- Dinosaurs and Paleontology developed with the Springfield Museum*
- Certification of Bilingual Teachers course developed with Massachusetts Department of Education*
- Electronic Meetings*

10/01/90

Appendix 4

MCET Board of Directors

Henry Becton; President, WGBH Educational Foundation
Anne Bailey Berman; Chadwick, Martin & Bailey
W. Randolph Bromery; Chancellor, Board of Regents of Higher Education
Joseph Duffey; President, University of Massachusetts, Amherst
Eileen Farley; President, Bristol Community College
Jack Lusk; Director of Training, Work Environment Laboratory
Joseph McDonough; The Hawthorne Group
Alden Raine; Secretary of Economic Affairs
Harold Reynolds; Commissioner, Massachusetts Department of Education
Albert Roderick; Massachusetts Association of Community Schools
Kenneth Ryder; Chancellor, Northeastern University
Richard Snyder; Goldstein & Manello
Sandra Spooner; Assistant Superintendent, Cambridge Public Schools
Paul Weller; President, Framingham State College

MCET Advisory Council

Carrie Buckner; Holyoke Community College
Joseph Byrne; Associate Provost, Tufts University
Linda Dagradi; Springfield College
Paul Devlin; President, Massachusetts Federation of Teachers
Barbara Farrell; Bay State Medical Center
Nancy Finkelstein; Director, Massachusetts Cultural Alliance
Judith Kurland; Commissioner, Department of Health and Hospitals
Jack Lusk; Director of Training, Work Environment Laboratory
Pat Mirisola; Clinical Manager, Greater Lawrence Family Health Center
Robin Smith; Teacher, Springfield Public Schools
Paul Tamburello; Justice, Massachusetts Superior Court (Retired)

Others Involved in Board Meetings

Lowell L. Richards III; Counsel, Cabot, Cabot & Forbes
David Knapp; Ralph Waldo Emerson Professor, University of Massachusetts
James Samels; Samels Associates

Appendix 5

MASSACHUSETTS CORPORATION FOR EDUCATIONAL
TELECOMMUNICATIONS

REPORT FOR THE YEAR ENDED

JUNE 30, 1990

I N D E X

	<u>Pages</u>
1. Independent Auditor's Report	1
2. Balance Sheets	2
3. Statements of Support, Revenue and Expenses and Changes in Fund Balance	3
4. Statements of Cash Flows	4
5. Notes to Financial Statements	5 - 6
6. Independent Auditor's Report on Supplementary Information	7
7. Schedules of Start Up Costs	8
8. Schedules of Project Costs	9



INDEPENDENT AUDITOR'S REPORT

August 28, 1990

To the Board of Directors
Massachusetts Corporation for
Educational Telecommunications
38 Sidney Street
Cambridge, Massachusetts 02139

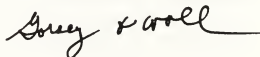
We have audited the accompanying balance sheets of Massachusetts Corporation for Educational Telecommunications as of June 30, 1990 and 1989, and the related statements of support, revenue and expenses and changes in fund balance and cash flows for the years then ended. These financial statements are the responsibility of the company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Massachusetts Corporation for Educational Telecommunications as of June 30, 1990 and 1989, and the results of its operations and its cash flows for the years then ended in conformity with generally accepted accounting principles.

GORSEY & WOLL

Certified Public Accountants



This report contains
nine (9) pages.

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS
BALANCE SHEETS

<u>June 30,</u>	<u>1990</u>	<u>1989</u>
<u>A S S E T S</u>		
Current Assets:		
Cash and cash equivalents	\$ 812,749	\$ 118,510
Accounts receivable	39,250	53,085
Merchandise inventory	20,996	xx
Interest receivable	xx	590
Prepaid expenses	21,990	11,276
Deposits	<u>24,219</u>	<u>xx</u>
Total Current Assets	<u>919,204</u>	<u>183,461</u>
Property and Equipment:		
Computers	26,979	13,377
Furniture and fixtures	29,097	9,254
Office equipment	42,379	21,219
Technical equipment	44,159	xx
Leasehold improvements	<u>3,238</u>	<u>xx</u>
Total	145,852	43,850
Less-Accumulated depreciation and amortization	<u>43,579</u>	<u>26,175</u>
Net Property and Equipment	<u>102,273</u>	<u>17,675</u>
TOTAL ASSETS	<u>\$1,021,477</u>	<u>\$ 201,136</u>
<u>L I A B I L I T I E S a n d F U N D B A L A N C E</u>		
Current Liabilities:		
Current maturities of capitalized lease obligations (secured)	\$ 2,978	\$ xx
Accounts payable	90,376	10,558
Accrued expenses	10,995	10,784
Accrued vacation pay	19,045	12,470
Payroll taxes payable	2,938	1,310
Deferred revenue	9,875	xx
Deferred restricted support	<u>1,086</u>	<u>16,083</u>
Total Current Liabilities	137,293	51,205
Long-Term Liabilities:		
Capitalized lease obligations, net of current portion (secured)	<u>5,239</u>	<u>xx</u>
TOTAL LIABILITIES	142,532	51,205
FUND BALANCE	<u>878,945</u>	<u>149,931</u>
TOTAL LIABILITIES AND FUND BALANCE	<u>\$1,021,477</u>	<u>\$ 201,136</u>

The accompanying notes are an integral part of this statement.
See accountant's report.

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS
STATEMENTS OF SUPPORT, REVENUE AND EXPENSES
AND CHANGES IN FUND BALANCE

Years Ended June 30,	1990				1989			
	Tele- communications Fund	Operational Fund	Donor Restricted Fund	Total	Tele- communications Fund	Operational Fund	Donor Restricted Fund	Total
Support and Revenue:								
Grant revenue	\$1,200,000	\$	\$ 15,298	\$1,215,298	\$ 507,750	\$	\$ 7,881	\$ 515,631
Interest income	xx	45,633	xx	45,633	xx	11,108	xx	11,108
Program income	xx	42,926	xx	42,926	xx	56,583	xx	56,583
Total Support and Revenue	1,200,000	88,622	15,298	1,303,922	507,750	67,691	7,881	583,322
Expenses:								
Project costs	55,276	xx	xx	55,276	xx	xx	xx	xx
Start up costs	504,232	xx	15,298	519,632	613,501	xx	7,881	623,382
	359,615	xx	15,298	374,913	613,501	xx	7,881	623,382
Excess (deficiency) of revenue over expenses	640,385	88,629	\$	729,014	(107,751)	67,691	\$	(40,060)
Fund Balance, beginning of year	82,240	67,691		149,931	189,991	xx		189,991
Fund Balance, end of year	\$ 722,625	\$ 156,320		\$ 878,945	\$ 82,240	\$ 67,691		\$ 149,931

The accompanying notes are an integral part of this statement.
See accountant's report.

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS
STATEMENTS OF CASH FLOWS

<u>Years Ended June 30,</u>	<u>1990</u>	<u>1989</u>
Cash Flows from Operating Activities:		
Excess (Deficiency) of Revenue Over Expenses	\$ <u>729,014</u>	\$ <u>(40,060)</u>
Adjustments to Reconcile Excess (Deficiency) of Revenue Over Expenses to Net Cash Provided by Operations:		
Depreciation	17,404	7,719
(Increase) Decrease in Assets:		
Accounts receivable	13,835	(13,689)
Merchandise inventory	(20,996)	xx
Interest receivable	590	887
Prepaid expenses	(10,714)	11,796
Deposits	(24,219)	xx
Increase (Decrease) in Liabilities:		
Accounts payable	79,818	(74,113)
Accrued expenses	211	(22,132)
Payroll taxes payable	1,628	(767)
Deferred restricted support	(14,997)	(6,789)
Accrued vacation pay	6,575	xx
Deferred revenue	<u>9,875</u>	<u>xx</u>
Total Adjustments	<u>59,010</u>	<u>(97,088)</u>
Net cash provided (used) by operations	<u>788,024</u>	<u>(137,148)</u>
Cash Flows from Investing Activities:		
Acquisition of property and equipment	<u>(102,002)</u>	<u>(1,265)</u>
Net cash (used) in investing activities	<u>(102,002)</u>	<u>(1,265)</u>
Cash Flows from Financing Activities:		
Proceeds of secured capitalized lease	9,725	xx
Principal payments on secured capitalized lease	<u>(1,508)</u>	<u>xx</u>
Net cash provided in financing activities	<u>8,217</u>	<u>xx</u>
Net Increase (Decrease) in Cash and Cash Equivalents	694,239	(138,413)
Cash and Cash Equivalents at Beginning of Year	<u>118,510</u>	<u>256,923</u>
Cash and Cash Equivalents at End of Year	<u>\$ 812,749</u>	<u>\$ 118,510</u>

The accompanying notes are an integral part of this statement.
See accountant's report.

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 1990

NOTE 1 - ORGANIZATION:

The Massachusetts Corporation for Educational Telecommunications (MCET) was formed in December 1982, by the state legislature, under the Acts of 1982. MCET's purpose is to establish a telecommunications network which will offer an educational telecommunications network to the Commonwealth of Massachusetts public and private sector. MCET is supported through grants from federal and state governments, contributions, grants, gifts and bequests from the private sector.

NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

FUND ACCOUNTING:

To ensure observance of limitations and restrictions placed on available resources, the accounts are maintained in accordance with the principles of fund accounting. Those funds restricted as to purpose and use are accounted for separately from unrestricted funds. The resources of donor restricted funds are classified for accounting purposes in accordance to the directions issued by the governing board. Donor restricted funds are deemed to be earned and reported as revenues when MCET has incurred expenditures in compliance with the specific restrictions. Such amounts received but not yet expended are reported as restricted deferred revenue.

PROPERTY AND EQUIPMENT:

Property and equipment are stated at cost, or in instances of donation, at fair market value. Depreciation is provided on the straight-line method over the estimated useful life of the assets.

INCOME TAXES:

MCET, as an instrumentality of the Commonwealth, is exempt from federal and state income taxes.

REVENUE RECOGNITION:

Support and revenue in the form of grants and donations are recorded when use of the cash or other donated assets is available to MCET.

DONATED SERVICES:

Income and expenses related to donated services are recorded on the financial statements when the donated services would have been provided by an employee and a fair value on the donated services could be ascertained. No income or expense related to donated services has been recorded in the accompanying financial statements.

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 1990

NOTE 3 - SIMPLIFIED EMPLOYEE PENSION PLAN:

MCET has a simplified employee pension plan. The plan provides a contribution equal to 10% of each permanent employee's annual salary who is at least 20 years of age. The contribution is made on a quarterly basis to a SEP/IRA of the employee's choice. Pension expense for the years ended June 30, 1990 and 1989 was \$22,738 and \$29,156 respectively.

NOTE 4 - OPERATING LEASES:

MCET's future minimum rental commitments under operating lease agreements for offices and equipment as of June 30, 1990 are as follows:

1991	\$ 57,158
1992	55,398
1993	55,398
1994	16,160
1995	<u>xx</u>
	<u>\$ 184,114</u>

NOTE 5 - RESTRICTED GRANTS:

MCET received a \$1,250,000 grant from a local university. The purpose of the grant is to engage the services of a consultant in an effort to secure federal support for the development of the telecommunications network and its needed supporting facilities. Consulting expenses charged to the grant were \$15,298 and \$7,881 in 1990 and 1989 respectively. The grant is completely funded.

NOTE 6 - DEFERRED RESTRICTED GRANTS:

Changes in deferred restricted grants in the donor restricted fund at June 30, 1990 are presented below:

Balance, beginning of year	\$ 16,083
Additions:	
Grants	xx
Investment income	<u>301</u>
	<u>16,384</u>
Deductions:	
Funds expended during the year	<u>15,298</u>
Balance, end of year	<u>\$ 1,086</u>

Gorsey & Woll

Certified Public Accountants

INDEPENDENT AUDITOR'S REPORT ON SUPPLEMENTARY INFORMATION

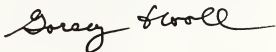
August 28, 1990

To the Board of Directors
Massachusetts Corporation for
Educational Telecommunications
38 Sidney Street
Cambridge, Massachusetts 02139

Our report on our audit of the basic financial statements of Massachusetts Corporation for Educational Telecommunications for the years ended June 30, 1990 and 1989 appears on page 1. Our audits were made for the purpose of forming an opinion on the basic financial statements taken as a whole. The schedules of start up costs and project costs are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information has not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we express no opinion on it.

GORSEY & WOLL

Certified Public Accountants



MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS
SCHEDULES OF START UP COSTS

<u>Years Ended June 30,</u>	<u>1990</u>	<u>1989</u>
Start Up Costs:		
Accounting	\$ 5,000	\$ 5,000
Advertising	6,041	xx
Clerical	2,366	1,365
Consulting	7,622	8,329
Depreciation	12,988	7,719
Electric	3,021	2,697
Equipment leasing	4,432	5,603
Insurance - group	21,337	21,506
Insurance - life	2,134	2,242
Insurance - other	20,249	7,638
Interest expense	951	xx
Legal fees	34,953	25,296
Marketing	5,000	5,450
Meetings	6,373	503
Miscellaneous	1,520	5,241
Moving Expense	4,981	xx
Office supplies	4,852	1,555
Payroll taxes	5,642	2,897
Penalties	xx	212
Pension	18,854	29,156
Periodicals and books	1,991	1,359
Pilot programs	xx	65,814
Postage and printing	19,957	7,284
Professional services	6,326	xx
Publications expense	2,500	xx
Rent	64,164	62,343
Repairs and maintenance	3,414	744
Salaries and wages	215,133	272,369
Star school program	xx	57,731
Telephone	11,218	11,561
Travel and entertainment	<u>11,320</u>	<u>3,887</u>
Total	<u>\$ 504,339</u>	<u>\$ 615,501</u>
MCET Development Trust Fund Consulting	<u>\$ 15,298</u>	<u>\$ 7,881</u>

See independent auditor's report on supplementary information.

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS
SCHEDULES OF PROJECT COSTS

<u>Years Ended June 30,</u>	<u>1990</u>	<u>1989</u>
Consulting	\$ 307	\$ xx
Depreciation	4,416	xx
Equipment purchase	3,492	xx
Payroll taxes	1,126	xx
Pension	3,884	xx
Salaries and wages	38,838	xx
Telephone	1,296	xx
Travel and entertainment	1,037	xx
Miscellaneous	<u>880</u>	<u>xx</u>
Total	<u>\$ 55,276</u>	<u>\$ xx</u>

See independent auditor's report on supplementary information.

MASS. Y3.CET1: 1/991



GOVERNMENT DOCUMENT
COLLECTION

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University of Massachusetts
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**Massachusetts
Corporation for
Educational
Telecommunications**

University Park at MIT
38 Sidney Street
Suite 300
Cambridge, MA
02139-4135

Tel: 617.621.0290

ANNUAL REPORT

FISCAL YEAR 1991

**MASSACHUSETTS CORPORATION FOR
EDUCATIONAL TELECOMMUNICATIONS**

FISCAL YEAR 1991

ANNUAL REPORT

The Massachusetts Corporation for Educational Telecommunications (MCET) is a quasi autonomous public corporation of the Commonwealth of Massachusetts established by Chapter 560 of the Acts of 1982. MCET has created a vision for the future of distance learning in Massachusetts through its mission:

To improve the quality of education and to make education more effective and information more accessible, by using the most advanced communications technologies, MCET will establish a statewide telecommunications system in order to enhance the economic environment and promote the general welfare of citizens of the Commonwealth.

OVERVIEW - FISCAL YEAR 1991

Fiscal Year 1991 was a year of dramatic growth, and implementation of the ambitious agenda established by MCET, its Board and Advisory Council during Fiscal Year 1990. MCET has become an integral part of the national Distance Learning marketplace. MCET is seen as a technology leader through its design of the Mass LearnPike and the use of multiple technologies in the middle school science project, Reach for the Stars. Further, MCET is an innovator in content and curriculum, developing course "modules" that enhance curricula and providing opportunities for substantive professional development for educators.

THE
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FOR THE
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OF
ORIGINAL
ARTICLES
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AND
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In July, 1990 MCET was an organization with seven staff; a new distance-learning network - the Mass LearnPike - with fifty members; and a budget of approximately \$3 million (\$2.6 million from state appropriation). Over the course of the year the staff grew to twenty-five; LearnPike membership rose nearly three-fold; and a major federal grant through the US Department of Education's Star Schools Program increased MCET's operating budget to \$8 million. The LearnPike was up and running; more than 150 hours of live interactive programming was aired. Students, parents, teachers, and administrators all participated in the wide variety of special events, teleconferences, and course modules.

1991 MILESTONES

Membership in the Mass LearnPike nearly tripled in FY91 as school systems across the state signed on. Reaction to the LearnPike's programs and services was strong, from students, teachers, administrators, community leaders, and the media. See Appendix 1: Mass LearnPike Members and sample press reports. In addition to the extensive video equipment and programming each member receives, the Mass LearnNet, a computer network linking members through electronic mail and bulletin boards was established in cooperation with the Merrimack Education Center. The Reach for the Stars program brought in schools from the rest of New England and New York.

In October, 1990 MCET was awarded \$4.9 million through the federal Department of Education's Star Schools program. The grant, Reach for the Stars, is designed to improve science education in middle grades (5-8) by integrating distance learning and other educational technologies with instructional strategies that emphasize investigative problem solving and cooperative learning. Working with a network of 59 demonstration sites in

New England and New York, MCET's programming reaches teachers and whole classes of students at all levels of interest and achievement, not simply the highly motivated student usually served by programs such as this. The first year of this two-year grant has been highly successful:

- Workshops and a week-long Summer Institute for teachers were held.*
- Teleconferences such as "Improving Science in the Middle Grades" were aired.*
- Development and formative evaluation of Reach for the Stars programs and products is ongoing.*

Funds for design, development, and construction of a state-of-the-art studio-uplink facility are a major contribution of the federal Star Schools monies to the Commonwealth.

Located at One Kendall Square in Cambridge, the studio will enable MCET to distribute more than 900 hours of live interactive programming to members in the 1992 fiscal year.

During FY91 over 150 hours of specials, courses, and teleconferences were distributed to LearnPike members in what MCET calls participatory, active television. Through its programming, MCET is attempting to accomplish its educational mission:

To take leadership in telecommunications-based education by altering the relationship between people and learning from passive to interactive, by providing responsive, cost-effective, innovative programs that utilize multiple technologies.

See Appendix 2: Selected list of programs.

In the Spring of 1991, MCET was asked to produce a one-hour video documentary for WGBH television. This documentary contains samples of the varied programs shown in the 1990-91 school year, along with testimonials from network observers and participants

APPENDIX 1

Mass LearnPike Members

Acton-Boxborough Regional	Falmouth	Newton	Westwood
Amesbury	Foxborough	North Attleboro	Whitman
Amherst-Pelham °	Framingham	North Reading	Winchendon
Andover °°		Norwood	Winthrop
Arlington	Gateway Regional		Worcester °
Ashland	Gill-Montague	Palmer	
Athol-Royalston Regional	Regional °	Peabody	
Attleboro °	Gloucester	Pentucket Regional °	
Auburn	Groton °°	Pepperell	
Avon		Pioneer Valley Regional °	
	Hamilton-Wenham Regional	Pittsfield °	* Archdiocese Schools
	Harvard	Plymouth-Carver °	° Reach for the Stars
Barnstable °	Harwich	Provincetown	
Bedford	Haverhill °°		
Belmont	Holliston °	Quincy °	
Beverly	Holyoke		
Bolton °	Hopedale	Randolph °	
Boston °	Hudson	Revere	
Braintree	Hull	Rochester	
Bridgewater			
Brockton °	Ipswich	Salem	
Brookline °		Scituate	
	King Philip Regional	Sharon	
Cambridge °		Shrewsbury °	
Canton	Leominster	Somerville °	
Canton °°	Lexington	Southbridge	
Carver °	Longmeadow	Springfield °	
Central Berkshire Regional	Ludlow	Stoneham	
Chatham	Lynnfield	Sutton °	
Chelmsford		Swampscott	
Chelsea	Malden		
Clinton °	Manchester	Tantasqua Regional	
Cohasset	Mansfield	Tewksbury	
Concord-Carlisle Regional	Marshfield	Townsend	
	Martha's Vineyard	Truro	
	Maynard	Tyngsborough	
	McCann Tech		
Danvers	Medfield	Wachusett Regional	
Dartmouth	Melrose	Walpole	
Dedham °	Middleborough	Waltham °	
Dennis-Yarmouth Regional	Millis	Waltham °°	
Dighton-Rehoboth Regional	Minuteman Regional	Wareham	
Dover-Sherborn Regional	Voc. Tech	Watertown	
	Mt. Greylock Regional °	Wayland	
		Webster °	
		Wellesley °	
		Westborough °	
Easton	Nantucket	West Bridgewater	
	Natick	Westford °	
Fairhaven	Needham	Weston	
Fall River °	New Bedford	Westport	

Mass LearnPike Member School Districts

Townsend

Lyngsbare

Wolpoff

Wolfram®

Wolentow

Webster

Wellbrey
Westboro

Westford

Weston
WestportWestwood
MIL-9000

Winchend

Worcester

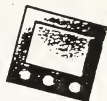
- Anchorage

Fox 1617

- Archdiocese School



Long-Distance Links



TECHNOLOGY CONNECTS TEACHERS WITH TRAINING AND SUPPORT

FOR YEARS, BOSTON'S MUSEUM OF SCIENCE RELIED ON A HANDFUL OF "ROAD WARRIORS" TO ADMINISTER THE MUSEUM'S TEACHER-TRAINING PROGRAM. ARMED WITH MATERIALS FROM OF THE WARRIORS BOSTON-AREA SCIENCE WORKSHOPS 20 TEACHERS. THE OF TEN ROAD-WEARY THEN, REACH A MAXIMUM OF 200 TEACHERS AT ONE TIME. TODAY, THE MUSEUM CAN REACH THOSE SAME 200 TEACHERS VIA TWO INSTRUCTORS AND ONE TEN-MINUTE CAR RIDE TO A NEARBY TELEVISION STUDIO.



The museum's training program now includes a series of interactive workshops televised to hundreds of science teachers simultaneously. Educators at the museum — along with countless others around Boston, Massachusetts — have realized that if technology can teach students in ways previously unimagined, it can also train and support teachers. Televisions, satellite dishes, and phone and computer networks are the tools at hand, and they're helping build a sturdy support structure for area educators. In addition to honing teaching skills, the interactive training process demystifies technology and makes educa-

tors into advocates. Having tuned in a satellite-delivered professional development course or accessed a computer network in order to "consult" with other educators, more teachers can now speak from experience when declaring, "I know how to use the technology and I know it can teach."

Satellite-delivered instruction such as the Science Museum's program allows teacher/students to "attend class" without leaving their school, phone in with questions and suggestions, and participate alongside the instructor with provided materials. The workshops exemplify the



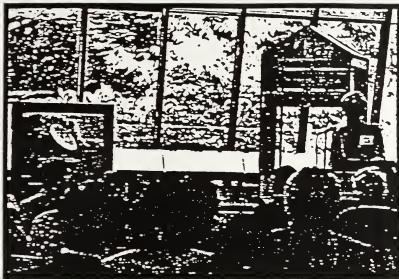
innovative educator support projects underway, and, in the Boston area, represent just one aspect of teacher enrichment in the works at the Massachusetts Corporation for Educational Telecommunications (MCET). The state-funded agency, based in nearby Cambridge and directed by Dr. Inabeth Miller, former director of educational outreach at

the Museum of Science, aims to improve education in the state by setting up the possibility of distance learning. Toward that end, MCET announced last spring the opening of the Mass LearnPike, an interactive satellite and computer network. As LearnPike participants, 50 of the state's schools will receive a satellite dish, TV, VCR, cordless phone, computer networking capability and hundreds of interactive satellite courses at nearly a tenth of the retail cost of such a package.

Certainly students will benefit from LearnPike's interactive programming, but the big winners are educators. MCET has negotiated with the TI-IN satellite network to offer 200 hours of educator development and enrichment courses at no cost to participating schools. In addition, MCET will include in its roster of original programming a graduate credit course for educators that addresses the issue of restructuring, and teleconferences for parents and school board members.

Along with programming for educators, all of MCET's original interactive programs for students — covering science, health care, culture and sports — will incorporate a training workshop for teachers. "Before the actual program starts, there will be a teacher-training session which, in some senses, is like a meeting via satellite, where we not only talk about the program, but also give every teacher a chance to ask questions," explained Miller.

Finally, MCET will link all LearnPike schools via computer, providing a teleconferencing network among educators, as well as instant access to MCET's programming and special-events information. "The project is called Front Porch," explained Miller. "We're trying to build an electronic mail and conferencing system for teachers so that they can begin to talk to each



other, and consult and advise each other in the same way people do on a front porch."

As MCET's LearnPike kicks off this month, participating teachers can expect support that is long overdue. "Much of what distance learning has been used for up to this day has been for small courses and for highly motivated kids," said Miller. "However, what we really want to see is if

this technology can be stretched much further than that... to teach teachers how to use technologies and to integrate them completely into what they're teaching. So you're not giving courses in satellite and computer but you're using those things — and all the technologies that are at our disposal right now — to really change."

As LearnPike's teachers are tuning in satellite-delivered workshops, hundreds of other area educators are tuning their cable box to receive similar programming produced by Boston Public School's Office of Technology. Thanks to cable channels provided by Cablevision of Boston, teachers in nearly all of Boston's public schools have the opportunity to participate in professional credit telecourses and mini-workshops. Last spring, teachers tuned in to "Math for the '90s," 15 hours of televised instruction that introduced teachers to math manipulatives such as base-10 blocks and Cuisenaire rods. The Office of Technology provided written materials to supplement the course, and ensured the sessions were participatory by supplying teachers with the blocks or wooden rods necessary to follow the televised instructor. "We didn't want these to be talking-head professional development courses," said Marilyn Gardner, director of the Office of Technology. "We wanted them to be hands-on." Boston teachers can look forward to more hands-on telecourses this year as Gardner and her staff gear up for another ambitious schedule of professional development programming.

Taking the LearnPike

Classroom TV brings in world

By LINDA HAYES TISCHLER

The anchorman was droning on about the usual governmental wrangling, but for Allison Rossi, the morning newscast was pretty exciting stuff.

"Hey, I understand that!" said the Watertown High School senior with surprise.

It wasn't a sudden revelation of the mysteries of the consumer price index or an insight into how the CLT tax roll back referendum will affect the state that had the teen so energized.

Rossi had been listening to a broadcast of the news from Paris — in French — delivered to Watertown High via satellite.

"Six years of French have finally paid off," she said.

The daily news — in French, in Greek, in Chinese, Polish, Arabic and 10 other languages — now will be available to Watertown and 50 other school systems in the state as part of their membership in the Mass LearnPike, a satellite-based broadcast network.

But the news will be only a fraction of the programming these schools will be able to pluck from the heavens. With a dish on the roof, and TVs and VCRs in the classroom, schools will be able to tap into learning channels from as far away as Texas and Oklahoma that offer advanced placement courses in English and history, as well as enrichment courses in everything from coastal ecology to Flamenco dancing.

Tomorrow the Mass LearnPike will officially open with a link-up between the Soviet space exhibit at the Museum of Science and junior and senior high school students from network member schools around the commonwealth.

The video telecast, which will originate at the museum, will allow students to ask questions of the museum staff who will demonstrate such things as weightlessness, and Soviet rocket scientists, who will be on hand for the occasion.

In an era of budget cutting, the Mass LearnPike is being hailed both as a way for schools to continue offering a wide range of courses that might have been sacrificed due to low enrollments, and

Turn to Page 7

TUNE IN: Inabeth Miller, executive director of Massachusetts Corporation for Education, left, and Sally Dias, superintendent of Watertown public schools, are hoping The Mass LearnPike will open new avenues of education. Staff photo by Renee DeKora



to offer courses that no local school could have ever dreamed of.

"This system would allow students at some point to take such things as music with renowned cellists or a course in understanding South Africa from Nelson Mandela — or to listen to President Bush read to classrooms all over Massachusetts," said Inabett Miller, executive director of the Massachusetts Corporation for Education.

MCET, which developed the Mass Learnlike, is the state agency mandated by the Legislature to bring instruction to teachers and students via telecommunications.

At Watertown High, superintendent Sally Dias hopes the network will enable the high school to offer courses not currently in the curriculum.

"We don't have a Russian program, for example," Dias said, "but we have an Armenian program that other schools could tap into."

Once the network gets going, such program sharing among schools could be common. The satellite link would allow, for example, a teacher of Armenian at Watertown High to teach students in Norwood, Chelmsford, Wayland and Boston simultaneously. Students would watch the teacher on classroom television sets and participate in discussions via phone lines, much as callers do on talk shows.

According to Miller, the setup has worked successfully in other states — particularly rural ones — where similar technology has been in use for years.

"Teachers often have a recipe box with the kids' pictures, birthdays and vital information," she said. "Kids feel extraordinarily close to these teachers."

In each case, a student's home school would assign an on-site teacher to handle questions and problems that could arise once the class is over.

But Massachusetts Teachers Association spokesman Steven Wolimer worries about what happens when the course's teacher is 40 miles away.

"I've heard of satellite feeds before," he said. "There has to be on-site interaction for the learning process to explode for kids. It's not the same as a real classroom experience."

Dr. Michael Ananis, assistant school superintendent in Wayland, shares Wolimer's concern. "Nothing's going to replace the quality master teacher in classroom," Ananis said. "No fancy technology or passive TV show will ever do that."

In affluent districts like Wayland, most schools plan to use their link-up for student enrichment and staff development, but not as courses for credit.

"Distance learning came of age in the Midwest where there were hundreds of miles between calculus teachers, and the option was not to offer calculus or to have it beamed in from University of Texas," Ananis said. "Having it beamed in is not great, but not having it is worse. That's not the case in Massachusetts."

"Unless," Ananis said, "the CUT petition passes, at which point we may all be taking courses from Texas, which is where all our teachers will probably be."

Whole brings us to a sensitive issue: where does widespread satellite learning leave endangered teachers?

While the Massachusetts teachers' union has not yet addressed the issue, staffers at the Boston public schools are already thinking ahead to the ramifications of such a system.

Doreen Kelly, technology support specialist for the Boston public schools, said the city's school system is currently working out how such problems will be handled in the classroom.

Kelly said, for example, that the system is considering offering a Japanese course next semester. But the potential students for that course are spread out across the city.

"Our needs are much the same as rural areas — where we have two kids in one school, one at another, and maybe five at another — who might need a course," Kelly said.

But although the network would allow those disparate groups of students to a subject such as take Japanese, it doesn't solve the problem of on-site supervision in an area few Boston teachers are equipped to teach.

"The Massachusetts department of education doesn't have guidelines to follow on this," Kelly said, "so we'll work with the Boston teachers union to make course-by-course decisions on how to handle this."

"It's not our goal to displace teachers," she said. "We know this is an issue, and we will try to iron it out. Like the union, we just want to give the best possible course content that we can."

The Boston system's satellite dish will be installed on the roof of the Cambridge Resource Center in Dorchester. Otherwise, when operational, it will link 80 schools in the Boston system, with another 40 to follow in the next year or so.

Many of the schools currently participating in the network hope to use the system for teacher training and staff development, an area which is always the first thing to go in the budget," according to Miller.

"Teachers want to learn in their home schools, to take a course with friends," said Miller. "Not having to travel means a lot."

The staff development component is especially appealing to schools like those in Shrewsbury, where distance from Boston's colleges and universities pose a real problem for teachers wishing to take courses.

The network offers courses by well-known speakers, said Thomas Plati, Shrewsbury's coordinator of educational technologies. "I recognize a number of them, and know they're expensive. We'd be hard pressed to be able to get anybody of that stature in to speak."

In Stoneham, Bob Hogan, supervisor of media and computer services, already has been having fun with the schools' satellite dish, which was installed during the summer. Hogan's been pulling the raw feed from CNN's newscasts off the satellite and showing it to students.

"You see the newscaster: blowing their noses and straightening their ties before the telecast," he said. "The kids love it because they think the news is so perfect all the time."

APPENDIX 2

2/26/91

**Mass LearnPike Program Services
Staff Development, 1990-91**

<u>Description</u>	<u>Curriculum area</u>	<u>Schedule</u>
<i>Devoted to Science: Conducted by the Museum of Science, this workshop series offers hands-on science activities for the classroom. Using kit materials purchased from the Museum, participating teachers interact at their site and with the studio instructors. Each kit also includes materials for 30 students for each activity.</i>	Science, 4 - 6th grade	3 - 4:30 pm, October 11, 25 November 8, 29 December 13
<i>Thumbs Up, Thumbs Down - The Curriculum Resource Network: Organized by representatives from Mass LearnPike school districts, this series will review library and AV materials (e.g. print, computer software, videodiscs, video). The series will include curriculum areas (K-12) such as Multi-Cultural, Black History, Literature in the Elementary classroom, study skills for middle schools, Global Awareness.</i>	Varies with session	3 - 4 pm January 31, February 7, 14 March 5, 7, 14, 28, April 2, 11, 25, May 2, 9
<i>NOVA in the Classroom: WGBH and MCET are developing a workshop focussed on "Risk: Living Against the Odds", a NOVA program which will be broadcast on WGBH and WGBY April 3, 8 - 11 pm. The participatory teleconference(s) will provide a forum to sharing information about effective classroom use of this resource for high school students. Through a grant from Chevron, schools may record "Living Against the Odds" directly off air, free of charge, and use the program for educational purposes (with permanent recording rights).</i>		TBA
<i>Eyes, Ears, and Hands-on Science: MCET, TV Ontario and Massachusetts Education Television have jointly developed this workshop to involve hands-on activities and video resources that are available to schools through MET's daytime public television broadcasts. Live from the studios of TV Ontario, this hands-on workshop will cover life science, physical science, and earth/space science.</i>	Elementary	1:30 - 3:30 pm May 1
<i>Middle School Math Inquiry Through Technology - A Telecourse for Teachers: This eight-session course developed by MCET and Bolt, Beranek and Newman focusses on using technology to support the kind of inquiry-oriented math classroom described in the NCTM curriculum and teaching standards. Middle school math teachers will be introduced to a variety of inquiry-based computer programs that run on Apple II.</i>		3:30 - 5 pm March 26, April 2, 9, 23, 30 May 7, 14, 21

2/26/91

*Mass LearnPike Program Services
Student Enrichment, 1990-91*

<u>Description</u>	<u>Curriculum area</u>	<u>Schedule</u>
<i>Soviet Space - An Interactive Tour: The Mass LearnPike Inauguration Event was an "electronic field trip" to the first international Soviet Space exhibition, live from the Museum of Science, Boston. Focus on specific elements of space exploration with demonstrations, a story-teller, and a representative from the Soviet Space delegation.</i>	<i>Middle - High School Science, Social Studies</i>	<i>10 - 11 am September 13</i>
<i>Sportsplan: A goal setting curriculum to help students learn to use objectives and goals to achieve success. The nine teleconference lessons feature a professional or well-known sports personality. Sites receive student activity books, curriculum guide and teacher</i>	<i>4 - 6th grade</i>	<i>10 - 10:45 am Oct. 3, 17, 31, Nov. 21 Dec. 5, 19 Jan. 9, 23 February 6 March 6</i>
<i>My Town: A monthly interactive program featuring Mass LearnPike students and their curriculum-based video projects. Registered sites receive discussion guides for each teleconference program.</i>	<i>2 - 12th grade Local history, government, environment, art</i>	<i>1 - 1:45 pm Oct.29, Nov.26 Dec.17, Jan.28 Feb. 25, Mar.25 April 29, May 6</i>
<i>The French Library in Boston's Tour de France: A 15-part teleconference series focussing on different aspects of French culture, such as growing up in France, history of fashion, contemporary theater, people in history, humor, poetry, business, media, painting.</i>	<i>9 - 12th grade Levels 2 - 4</i>	<i>10 - 11 am Feb.7, 14, 25 Mar. 7, 14, 21 28, April 2, 11, 25, May 2, 9, 16, 23, 30</i>
<i>Artists in Electronic Residence: Three five-week residencies through which artists will engage students in different art forms. They are:</i>		
<i>Underground Railway Theater and participating students will create shadow puppet-ballet-pantomimes to Igor Stravinsky's <u>The Emperor and the Nightingale</u> based on the Hans Christian Andersen story. Materials will be provided.</i>	<i>4 - 6th grade</i>	<i>Feb12, 3-4:30 10 - 11 am Mar12, 19 Apr 1, 9</i>

<u>Description</u>	<u>Curriculum area</u>	<u>Schedule</u>
<i>Fabric artist Barbara Ward and participating students will create West African headpieces using the traditional technique called okakagbe (African applique), using traditional and contemporary materials. Students will learn pattern construction. Workshops will also focus on a positive image of black history, using images from dance, music, costume and textiles.</i>	7 - 9th grade	March 1, 8, 15, 22, 26
<i>Martin Espada is a poet whose work focusses on the Latin American experience in the US. Students will focus on a specific poetic form illustrated by sample poems and then applied by writing about the subject of the day called the poetry idea.</i>	9 - 12th grade	April 22, 29 May 6, 13, 20
<i>Dancing in Our Time - Contemporary Performance Series: The five-part series includes conversation, demonstration and lecture, and performances by professional dancers who choreograph and perform dances from distinct cultural traditions. Through two-way interaction student and the artists will discuss the way the language of the particular dances communicate the ideas, feelings, and stories. The programs in this series are as follows:</i>	3 - 6th grade	
<i>De Ama Battle, The Art of Black Music and Dance, African Dance</i>		1 - 1:50 pm Jan. 30
<i>Laura Young, Boston Ballet II, Western European Dance</i>		1 - 1:50 pm March 20
<i>Jorge Arce, Humano, Afro-Caribbean Dance</i>		1 - 1:50 pm April 8
<i>Ranjana Devi, Nataraj, Classical Indian Dance</i>		1 - 1:50 pm April 24
<i>Contemporary Dance: Martha Armstrong Gray, Adrienne Hawkins, Nikki Hu</i>		1 - 1:50 pm May 22
<i>Coping With War: Three experts from M.I.T. and Tufts University answer students' questions on the history, culture, and politics of the Middle East as they relate to the Gulf War.</i>	High School	Jan. 25 9 - 10 am

DescriptionCurriculum areaSchedule

Scientists in Electronic Residence: Three five-week residencies through which scientists will work with students to help change their attitudes about science and scientists, provide women and minority role models, and expose students to the process and vocabulary of science. The residencies are:

Peter Del Tredici, Botanist and Editor of the "Arnoldia" from the Arnold Arboretum will lead five sessions: Teacher Preparation, Portrait of a Scientist, Plant Propagation, Plants as Food (economic botany), and Looking at Trees.

3rd - 6th grade

Jan17, 3:15-4
10 - 10:45 am
Jan.29, Feb.15
March 11,
Apr5

Dr. Donna Fernandes, Zoologist, Research Coordinator, MetroParks Zoos: Teacher Preparation, Portrait of a Scientist and Intro to the "Secret

5th - 6th grades

Jan14, 3:15-4
10 - 10:45 am
J a n . 2 8 ,
Feb.11,
March 4, 18

Lives of Insects", Insect Life Stages and Wintering Sites, Camouflage and Mimicry, Insect Communication.

Paul Evans, Horticulturist, Science Developer, Children's Museum, Boston: Teacher Preparation, Portrait of a Scientist and Properties of Ink, Phenomenon of Waves,Bubbles, Review and Wrap-up.

6th (advanced)

Jan24, 3:15-4
10 - 10:45 am
Feb.8, Mar 13,
27, April 10

An Electronic Field Trip to the Boston Museum of Science - Tropical Rainforests: A Disappearing Treasure: A special event to introduce students to the rainforest environment, culture, and some of the causes and issues related to rainforest destruction.

5 - 8th

10 - 11 am
Jan. 24

Learning to Lead - Legislative Participation: A five-part teleconference series to acquaint high school students with state government, and provide an opportunity to interact with Massachusetts lawmakers. The series is supplemented by the curriculum, "There Ought to be a Law." The sessions include: Teacher Orientation; Public Hearing: Part I - Student Opinions; Public Hearing: Part II - Coalition Building; The Role of the Media and Polling; Research, Reporting and Decision Making. Students will become involved with an active bill which will directly affect their lives.

high school

Ap22,3:15-4
10-11 am
May 1, 8,15,29

<u>Description</u>	<u>Curriculum area</u>	<u>Schedule</u>
<p><i>The Great Auk: Educator/naturalist Richard Wheeler will lead this session focussed on his July-October 1991 sea kayak solo expedition tracing the remarkable 1500 mile Newfoundland to Cape Cod migration route of the extinct Great Auk. This session is also the prelude to four special events in the fall, 1991, in which students will meet with Richard Wheeler during his expedition.</i></p>	<p><i>Middle school environment, geography</i></p>	<p><i>TBA</i></p>
<p><i>Prequel-Sequel: A behind the scenes opportunity for high school students to meet with producers and experts associated with a WGBH program.</i></p>		<p><i>TBA</i></p>
<p><i>The Human Genome - An Electronic Assembly: An introduction to the Human Genome initiative, with experts from many related fields presenting their perspectives.</i></p>	<p><i>high school students, school personnel, parents</i></p>	<p><i>TBA</i></p>

2/26/91

*Mass LearnPike Program Services
Administrator and School Board Resources, 1990-91*

<u>Description</u>	<u>Curriculum area</u>	<u>Schedule</u>
<i>Superintendent's Forum: Created in response to suggestions made by the Mass LearnPike Administrative Advisory Committee, topics discussed in this five-part participatory teleconference series include: Practical Advice for Implementing Site-Based Management; Working the Agenda and Avoiding the Pitfalls of Site-Based Management; Managing Shrinking Resources Without Being the Bad Person; How To Secure Your Districts Future With School, Business and Community Partnerships; The President's Goals - Addressing Them Now Before its too Late.</i>	<i>Superintendents</i>	<i>Mar.13, 1-2 pm Mar27, 12:30-1:30 pm Apr.23, 10-11 May14, 10-11 June5, 10-11</i>
<i>Conversations With The Commissioner: A unique opportunity for Massachusetts Superintendents to interact with Commissioner Raynolds on emerging issues of importance to public education in the state.</i>	<i>Superintendents</i>	<i>Jan25, 11-12 Mar19, 3-4pm Apr12, May 17, 11 - noon</i>
<i>Coping With War: Dr. Robert Evans, noted psychologist, responds to questions from school professionals on how to respond to students' emotional reactions to the Gulf War.</i>	<i>Administrators Guidance Counselors</i>	<i>Jan. 18 9:30-10:30 am</i>

APPENDIX 3

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS
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Goldstein & Manello

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WGBH Educational Foundation

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Daniel S. Gregory
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Jack Luskin
Director of Training
ULOWELL Work Environment Lab.

Paul G. Marks
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Cabot, Cabot & Forbes

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Associate Justice Retired
Supreme Judicial Court

Clerk: David Knapp
President Emeritus UMASS

APPENDIX 4



The Commonwealth of Massachusetts

AUDITOR OF THE COMMONWEALTH

STATE HOUSE, BOSTON 02133

JOSEPH DE NUCCI
AUDITOR

TEL. (617) 727-2075

91-1302-2

RECEIVED OCT 19 1990

October 17, 1990

Dr. Inabeth Miller, Executive Director
Massachusetts Corporation for Educational
Telecommunications
38 Sidney Street
Cambridge, Massachusetts 02139

Dear Dr. Miller:

In accordance with Chapter 11, Section 12, of the Massachusetts General Laws, we have completed a review of the Massachusetts Corporation for Educational Telecommunication's (MCET's) financial activity for the period July 1, 1988 to June 30, 1990. The financial activity and compliance with laws and regulations applicable to the Massachusetts Corporation for Educational Telecommunications are the responsibility of the management of the Massachusetts Corporation for Educational Telecommunications.

The purpose of our review was to determine whether MCET's accounting records were maintained in accordance with generally accepted accounting principles and whether MCET has complied with laws and regulations that may have a material effect upon its financial activities. Since MCET had contracted with an independent public accounting (IPA) firm to perform a financial and compliance audit of its fiscal years 1989 and 1990 financial statements, we reviewed the firm's working papers and report to determine the reasonableness of the firm's work and the extent to which we could rely on it. Because the IPA had not completed its 1990 audit as of the end of our audit fieldwork (September 18, 1990), we did not examine the IPA's audit work

pertaining to fiscal year 1990. We conducted our examination in accordance with generally accepted government auditing standards for financial-related audits.

Our audit procedures for fiscal year 1990 consisted of the following:

- o Study and evaluation of internal accounting controls solely to assist us in determining the nature, timing, and extent of our audit procedures as well as to obtain an understanding of the control environment and the flow of transactions through the accounting system. Our study and evaluation was more limited than would be necessary to express an opinion on the system of internal accounting control taken as a whole. For the purpose of our review, we have classified the significant internal accounting controls in the following categories: Receipts, Funding, and Expenditures.
- o Review of the financial records and transactions to evaluate their completeness, accuracy, and conformance with generally accepted accounting principles.
- o Assessment of MCET's compliance with its enabling legislation, Chapter 560 of the Acts of 1982, and its compliance with other pertinent laws and regulations.

Our review of the IPA's working papers and report for fiscal year 1989 consisted of the following:

- o Review of the firm's approach to and planning of the audit;
- o Evaluation of the qualifications and independence of the audit staff;
- o Review of the financial statements and the firm's report to evaluate compliance with generally accepted accounting principles and generally accepted auditing standards; and
- o Review and testing of the firm's working papers to determine (1) the nature, timing, and extent of audit work performed, (2) the extent of audit quality control methods used, (3) whether a study and evaluation was conducted of internal accounting controls, (4) whether the firm tested transactions for compliance with applicable laws and regulations, and (5) whether the evidence in the working papers supported the auditor's opinion on the financial statements and internal accounting control and compliance reports.

Based on our review, we have determined that MCET has maintained its fiscal year 1989 and 1990 accounting records in accordance with prescribed requirements and has complied with state laws for those areas we reviewed. In

addition, nothing came to our attention to indicate that the financial statements for fiscal year 1989 were not fairly presented. Therefore, we will rely on the public accounting firm's report dated December 18, 1989.

Sincerely,

A handwritten signature in dark ink, appearing to read "A. Joseph DeNucci". The signature is fluid and cursive, with the first name "A." and last name "DeNucci" clearly distinguishable.

A. JOSEPH DeNUCCI
Auditor of the Commonwealth

Audited Financial Statements
and Other Financial Information

Massachusetts Corporation for Educational
Telecommunications

June 30, 1991

Audited Financial Statements and Other Financial Information

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS

June 30, 1991

Report of Independent Auditors.....	1
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Audited Financial Statements

Balance Sheets.....	2
Statements of Support, Revenue and Expenses and Changes in Fund Balance.....	3
Statements of Cash Flows.....	4
Notes to Financial Statements.....	5

Other Financial Information

Schedules of Start-Up, Project and General and Administrative Costs.....	8
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REPORT OF INDEPENDENT AUDITORS

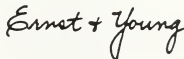
Board of Directors
Massachusetts Corporation for
Educational Telecommunications

We have audited the accompanying financial statements of the Massachusetts Corporation for Educational Telecommunications (MCET) as of and for the year ended June 30, 1991, as listed in the table of contents. These financial statements are the responsibility of MCET's management. Our responsibility is to express an opinion on these financial statements based on our audit. The financial statements of MCET for the year ended June 30, 1990, were audited by other auditors whose report dated August 28, 1990, expressed an unqualified opinion on those statements.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the 1991 financial statements referred to above present fairly, in all material respects, the financial position of MCET at June 30, 1991, and the results of its operations and its cash flows for the years then ended in conformity with generally accepted accounting principles.

Our audit was made for the purpose of forming an opinion on the financial statements taken as a whole. The accompanying additional information, the schedules of start-up, project and general and administrative costs for the years ended June 30, 1991 and 1990 are presented for purposes of additional analysis and are not a required part of the financial statements of MCET. Such information for the year ended June 30, 1991 has been subjected to the auditing procedures applied in our audit of the financial statements and, in our opinion, is fairly stated in all material respects in relation to the financial statements taken as a whole. Such information for the year ended June 30, 1990 has not been subjected to the auditing procedures applied in the audit of the financial statements, and, accordingly, we express no opinion on it.



September 10, 1991



BALANCE SHEETS

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS

	June 30	
	1991	1990
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	\$ 501,482	\$ 812,749
Accounts receivable--Commonwealth of Massachusetts	690,000	
Accounts receivable--other	174,621	39,250
Merchandise inventory		20,996
Prepaid expenses	5,293	21,990
Deposits	11,019	24,219
TOTAL CURRENT ASSETS	1,382,415	919,204
PROPERTY AND EQUIPMENT		
Computers	118,557	26,979
Furniture and fixtures	125,475	29,097
Office equipment	56,965	42,379
Technical equipment	659,744	44,159
Studio equipment	132,322	
Network equipment	242,552	
Leasehold improvements	4,013	3,238
	1,339,628	145,852
Less accumulated depreciation and amortization	191,078	43,579
	1,148,550	102,273
Construction in progress	135,000	
NET PROPERTY AND EQUIPMENT	1,283,550	102,273
TOTAL ASSETS	<u>\$2,665,965</u>	<u>\$1,021,477</u>
LIABILITIES AND FUND BALANCE		
CURRENT LIABILITIES		
Current maturities of capitalized lease obligations	\$ 3,269	\$ 2,978
Accounts payable	234,517	90,376
Accrued expenses	18,000	10,995
Accrued payroll	19,407	
Accrued compensated absences	66,870	19,045
Payroll taxes payable	30,322	2,938
Deferred revenue	105,000	9,875
Deferred restricted support		1,086
TOTAL CURRENT LIABILITIES	477,385	137,293
LONG-TERM LIABILITIES		
Capitalized lease obligations, net of current portion	1,970	5,239
TOTAL LIABILITIES	479,355	142,532
FUND BALANCE	2,186,610	878,945
TOTAL LIABILITIES AND FUND BALANCE	<u>\$2,665,965</u>	<u>\$1,021,477</u>

See notes to financial statements.



STATEMENTS OF SUPPORT, REVENUE AND EXPENSES AND CHANGES IN FUND BALANCE
MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS

	June 30, 1991			June 30, 1990		
	Telecommunications* Fund	Reach for the State Fund	Donor- Restricted Fund	Telecommunications Fund	Operational Fund	Donor- Restricted Fund
Support and revenue:						
Grant revenue	\$2,600,000	\$1,607,628	\$21,086	\$1,200,000	\$42,996	\$15,298
Program income	29,000				45,633	42,996
Interest income	38,159				88,629	
TOTAL SUPPORT AND REVENUE	<u>2,968,159</u>	<u>1,607,628</u>	<u>21,086</u>	<u>1,200,000</u>	<u>88,629</u>	<u>15,298</u>
Expenses:						
Project costs	1,541,361	1,089,130	21,086	55,276		55,276
Start-up costs				504,339		519,637
General and administrative	<u>385,709</u>	<u>191,962</u>	<u>21,086</u>	<u>577,671</u>		<u>15,298</u>
	<u>1,927,070</u>	<u>1,281,092</u>		<u>559,615</u>		<u>574,913</u>
EXCESS OF REVENUE OVER EXPENSES	981,129	326,536		640,385	88,629	729,014
Fund balance at beginning of year	<u>878,945</u>				<u>67,691</u>	
FUND BALANCE AT END OF YEAR	<u>\$1,860,074</u>	<u>\$326,536</u>	<u>\$-0-</u>	<u>\$722,625</u>	<u>\$156,320</u>	<u>\$-0-</u>
						<u>\$878,945</u>

* Note: For the year ended June 30, 1991, the Telecommunications Fund and the Operational Fund have been combined under one heading.

See notes to financial statements.

STATEMENTS OF CASH FLOWS

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS

	Year Ended June 30	
	1991	1990
OPERATING ACTIVITIES		
Excess of revenue over expenses	\$ 1,307,665	\$ 729,014
Adjustments to reconcile excess of revenue over expenses to net cash provided by operating activities:		
Depreciation and amortization	147,499	17,404
Decrease (increase) in accounts receivable	(825,371)	13,835
Decrease (increase) in merchandise inventory	20,996	(20,996)
Decrease in interest receivable		590
Decrease (increase) in prepaid expense	16,697	(10,714)
Decrease (increase) in deposits	13,200	(24,219)
Increase in accounts payable	144,141	79,818
Increase in accrued expenses	7,005	211
Increase in accrued payroll	19,407	
Increase in payroll taxes payable	27,384	1,628
Decrease in deferred restricted support	(1,086)	(14,997)
Increase in accrued compensated absences	47,825	6,575
Increase in deferred revenue	95,125	9,875
Cash provided by operating activities	<u>1,020,487</u>	<u>788,024</u>
INVESTING ACTIVITIES		
Acquisition of property and equipment	(1,193,776)	(102,002)
Construction in progress	(135,000)	
Cash used for investing activities	<u>(1,328,776)</u>	<u>(102,002)</u>
FINANCING ACTIVITIES		
Proceeds of capitalized lease		9,725
Principal payments on capitalized lease	(2,978)	(1,508)
Cash provided by (used for) financing activities	<u>(2,978)</u>	<u>8,217</u>
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(311,267)	694,239
Cash and cash equivalents at beginning of year	<u>812,749</u>	<u>118,510</u>
CASH AND CASH EQUIVALENTS AT END OF YEAR	<u>\$ 501,482</u>	<u>\$ 812,749</u>

See notes to financial statements.

NOTES TO FINANCIAL STATEMENTS

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS

NOTE A--ORGANIZATION

The Massachusetts Corporation for Educational Telecommunications (MCET) was formed in December 1982, by the state legislature, under Chapter 560 of the Acts of 1982. MCET's purpose is to establish and operate a statewide telecommunications system which will offer an educational telecommunications network to the Commonwealth of Massachusetts public and private sector. MCET's mission is to improve the quality of education and to make education more effective and information more accessible by using the most advanced communication technologies. MCET is supported through grants from federal and state agencies, contributions, grants, gifts and bequests from the private sector.

NOTE B--SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Fund Accounting: To ensure observance of limitations and restrictions placed on available resources, the accounts are maintained in accordance with the principles of fund accounting. Those funds restricted as to purpose and use are accounted for separately from unrestricted funds. The resources of donor-restricted funds are classified for accounting purposes in accordance to the directions issued by the governing board. The assets, liabilities and fund balance of MCET are reported in three self-balancing funds as follows:

- The Telecommunications Fund represents the portion of MCET's expendable funds that is received from State grantor agencies and is available for support of MCET's network and programming activities. The Telecommunications Fund also represents MCET's principal operating fund.
- The Reach For The Stars Fund represents the portion of MCET's expendable funds that is received from the Federal Star Schools program and is available for support of a broadcast studio and multi-technology in the schools that are served.
- The Donor-Restricted Fund represents funds that are subject to the restrictions of the grantor agency.

Property and Equipment: Property and equipment are stated at cost, or in the case of donated equipment, at fair value as of the date of the donation. Depreciation and amortization are provided on the straight-line method over the estimated useful lives of the assets, or the term of the grant if there is uncertainty about the availability of future funding. Useful lives range from two to ten years.

Income Taxes: MCET, as an instrumentality of the Commonwealth of Massachusetts, is qualified as a tax-exempt organization under Section 115(1) of the Internal Revenue Code and, therefore, the operations are not subject to federal or state income taxes.

NOTES TO FINANCIAL STATEMENTS--CONTINUED

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS

NOTE B--SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES--CONTINUED

Revenue Recognition: Support and revenue in the form of grants and donations are recorded when use of the cash or other donated assets is available to MCET. Donor-restricted funds are deemed to be earned and reported as revenues when MCET has incurred expenditures in compliance with the specific restrictions. Such amounts received but not yet expended are reported as restricted deferred revenue. Network access fees are recorded in the period in which those fees become receivable. Annual membership fees are recognized over the period to which the fees relate.

NOTE C--SIMPLIFIED EMPLOYEE PENSION PLAN

MCET has a simplified employee pension plan. The Plan provides a contribution equal to 10% of each permanent employee's annual salary, for employees who are at least 20 years of age. The contribution is made on a quarterly basis to a SEP/IRA of the employee's choice. Pension expense for the years ended June 30, 1991 and 1990 was \$63,137 and \$22,738, respectively.

NOTE D--LEASES

The Company leases equipment which will become its property upon completion of the lease term in 1992. This equipment is included in office equipment for financial reporting purposes. Certain other equipment, office space and a studio are leased under noncancellable operating leases expiring in various years through 1995. The office space and studio leases require the Company to pay all maintenance costs and property taxes allocable to the leased premises as additional rent.

Future minimum payments, by year and in the aggregate, under the capital lease and operating leases with initial or remaining terms of one year or more consisted of the following at June 30, 1991:

	Capital Lease	Operating Leases
1992	\$4,215	\$182,767
1993	1,757	182,767
1994		106,322
1995		86,207
1996		86,023
Total minimum lease payments	5,972	<u>\$644,086</u>
Amounts representing interest	<u>733</u>	
PRESENT VALUE OF NET MINIMUM LEASE PAYMENTS	<u>\$5,239</u>	

Rental expense under noncancellable operating leases as of June 30, 1991 and 1990 was \$136,400 and \$64,164, respectively.

NOTES TO FINANCIAL STATEMENTS--CONTINUED

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS

NOTE E--RESTRICTED GRANTS

In a prior year, MCET received a \$1,250,000 grant from a local university. The purpose of the grant is to engage the services of a consultant in an effort to secure federal support for the development of the telecommunications network and its needed supporting facilities. Consulting expenses charged to the grant were \$1,086 and \$15,298 in 1991 and 1990, respectively. The grant is now fully expended.

During 1991, the Company received a \$20,000 grant from a local corporation restricted for the purpose of assisting in the production of an educational documentary regarding the legislative process. This grant was fully expended in 1991.

NOTE F--CASH

At June 30, 1991, the carrying amount of MCET's deposits was \$207,360 for book purposes and \$475,520 per the bank, the difference resulting from unrepresented checks. These deposits are categorized below to give an indication of the level of risk assumed by MCET at year end. Category 1 includes bank balances that are insured by federal depository insurance. Category 2 includes uninsured bank balances.

	<u>Category 1</u>	<u>Category 2</u>
Cash	\$100,000	\$375,520

At June 30, 1991, the carrying amount of MCET's deposits in the Massachusetts Municipal Depository Trust was \$294,121. These deposits are fully collateralized.

NOTE G--RELATED PARTIES

Certain directors of MCET are officers and directors of entities with which MCET does business. These directors abstain from voting on MCET matters related to their respective affiliated entities.

OTHER FINANCIAL INFORMATION

SCHEDULES OF START-UP, PROJECT AND GENERAL AND ADMINISTRATIVE COSTS
MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS

	Year Ended June 30, 1991			Year Ended June 30, 1990		
	Project Costs	General and Administrative Costs	Total	Project Costs	Start-Up Costs (Unaudited)	Total
Accounting	\$ 8,460	\$ 18,000	\$ 18,000		\$ 5,000	\$ 5,000
Advertising and promotions	12,324	4,713	13,173		6,041	6,041
Auto expense	3,314	3,314	15,638			
Clerical	8,668	358	9,006		2,366	2,366
Consulting	290,407	46,893	337,300	\$ 307	7,929	7,929
Depreciation and amortization	113,824	33,675	147,499	4,416	12,988	17,404
Electric	3,859	2,371	6,230		3,021	3,021
Employee and teacher training	31,220	1,787	33,007	3,492		3,492
Equipment and software	183,119	2,637	185,756		4,432	4,432
Equipment leasing	6,461	2,829	9,290		43,720	43,720
Insurance	65,226	36,518	101,744		951	951
Interest expense	794	445	1,239		34,953	34,953
Legal fees	5,722	25,722	31,465		5,000	5,000
Marketing	10,018	5,081	15,099		6,373	6,373
Meetings	2,388	1,057	3,445	880	1,520	2,400
Membership dues	671	147	818		4,981	4,981
Miscellaneous	1,060	593	1,653		4,852	4,852
Moving expense	32,564	9,827	42,391	1,126	5,642	6,768
Office supplies	10,850	4,066	14,916	3,884	18,854	22,738
Payroll taxes	40,471	22,866	63,137		1,991	1,991
Pension	3,817	2,047	5,864		19,357	19,357
Periodicals and books	58,187	29,880	88,067		6,326	6,326
Postage and printing					2,500	2,500
Professional services					64,164	64,164
Publications expense					3,416	3,416
Rent	107,922	28,477	136,399		215,133	215,133
Repairs and maintenance	3,559	1,807	5,366		253,971	253,971
Salaries and wages	1,071,458	27,128	1,295,586	38,838	11,218	12,514
Telephone	37,613	7,787	45,400	1,296		
Travel and program expense	563,131		563,131			
Travel and entertainment	26,272	10,846	37,573	1,037	11,320	12,357
	2,650,491	577,671	3,228,162	55,276	559,615	614,891
MCET Development Trust Consulting	1,086		1,086		15,298	15,298
TOTAL	\$2,651,577	\$577,671	\$3,229,248	\$55,276	\$519,632	\$574,913

Federal Financial Assistance and
Internal Accounting Control and Compliance

Massachusetts Corporation for Educational
Telecommunications

June 30, 1991

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS

INDEX TO FEDERAL FINANCIAL ASSISTANCE AND
INTERNAL ACCOUNTING CONTROL AND COMPLIANCE

June 30, 1991

Federal Financial Assistance

Report on Supplementary Information--Schedule of Federal Financial Assistance.....	1
Schedule of Federal Financial Assistance.....	2

Internal Accounting Control and Compliance

Compliance Report Based on an Audit of the Financial Statements Performed in Accordance with <u>Government</u> <u>Auditing Standards</u>	3
Single Audit Opinion on Compliance with Specific Requirements Applicable to Major Federal Financial Assistance Programs.....	4
Single Audit Report on Compliance with the General Requirements Applicable to Major Federal Financial Assistance Programs.....	5
Report on the Internal Accounting Control Structure in Accordance with <u>Government Auditing Standards</u>	7
Single Audit Report on the Internal Control Structure Used in Administering the Federal Financial Assistance Program.....	9
Schedule of Findings and Questioned Costs.....	12

REPORT ON SUPPLEMENTARY INFORMATION--SCHEDULE OF
FEDERAL FINANCIAL ASSISTANCE

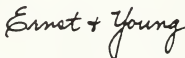
REPORT OF INDEPENDENT AUDITORS

Board of Directors
Massachusetts Corporation for
Educational Telecommunications

We have audited the financial statements of the Massachusetts Corporation for Educational Telecommunications (MCET) as of and for the year ended June 30, 1991 and have issued our report thereon dated September 10, 1991. These financial statements are the responsibility of MCET's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards and Government Auditing Standards, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

Our audit was made for the purpose of forming an opinion on the financial statements of MCET taken as a whole. The accompanying schedule of federal financial assistance is presented for purposes of additional analysis and is not a required part of the financial statements. The information in that schedule has been subjected to the auditing procedures applied in the audit of the financial statements and, in our opinion, is fairly stated in all material respects in relation to the financial statements taken as a whole.



September 10, 1991



SCHEDULE OF FEDERAL FINANCIAL ASSISTANCE
 MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS

Year Ended June 30, 1991

<u>Federal Grantor/Pass-Through Grantor/Program Title</u>	<u>Federal CFDA Number</u>	<u>Beginning Fund Balance</u>	<u>Revenue</u>	<u>Expenditures</u>	<u>Ending Fund Balance</u>
Star Schools Program	84.203A	\$ <u>0</u>	\$ <u>1,607,628</u>	\$ <u>1,281,092</u>	\$ <u>326,536</u>



COMPLIANCE REPORT BASED ON AN AUDIT OF THE
FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE
WITH GOVERNMENT AUDITING STANDARDS



REPORT OF INDEPENDENT AUDITORS

Board of Directors
Massachusetts Corporation for
Educational Telecommunications

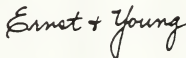
We have audited the financial statements of the Massachusetts Corporation for Educational Telecommunications (MCET) as of and for the year ended June 30, 1991, and have issued our report thereon dated September 10, 1991.

We conducted our audit in accordance with generally accepted auditing standards and Government Auditing Standards, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

Compliance with laws, regulations, contracts, and grants applicable to MCET is the responsibility of MCET's management. As part of obtaining reasonable assurance about whether the financial statements are free of material misstatement, we performed tests of MCET's compliance with certain provisions of laws, regulations, contracts, and grants. However, our objective was not to provide an opinion on overall compliance with such provisions.

The results of our tests indicate that with respect to the items tested, MCET complied, in all material respects, with the provisions referred to in the preceding paragraph. With respect to items not tested, nothing came to our attention that caused us to believe that MCET had not complied, in all material respects, with those provisions.

This report is intended for the information of the Board of Directors, management and federal financial assistance grantors. This restriction is not intended to limit the distribution of this report, which is a matter of public record.



September 10, 1991



SINGLE AUDIT OPINION ON COMPLIANCE WITH
SPECIFIC REQUIREMENTS APPLICABLE TO MAJOR
FEDERAL FINANCIAL ASSISTANCE PROGRAMS



REPORT OF INDEPENDENT AUDITORS

Board of Directors
Massachusetts Corporation for
Educational Telecommunications

We have audited the financial statements of the Massachusetts Corporation for Educational Telecommunications (MCET) as of and for the year ended June 30, 1991, and have issued our report thereon dated September 10, 1991.

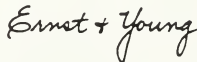
We have also audited MCET's compliance with the reporting requirements that are applicable to its major federal financial assistance program, which is identified in the accompanying schedule of federal financial assistance, for the year ended June 30, 1991. The management of MCET is responsible for MCET's compliance with those requirements. Our responsibility is to express an opinion on compliance with those requirements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards, and Government Auditing Standards, issued by the Comptroller General of the United States, and Office of Management and Budget Circular A-128, "Audits of State and Local Governments." Those standards and OBM Circular A-128 require that we plan and perform the audit to obtain reasonable assurance about whether material noncompliance with the requirements referred to above occurred. An audit includes examining, on a test basis, evidence about MCET's compliance with those requirements. We believe that our audit provides a reasonable basis for our opinion.

The results of our audit procedures disclosed immaterial instances of noncompliance with the requirements referred to above which are described in the accompanying schedule of findings and questioned costs. We considered these instances of noncompliance in forming our opinion on compliance, which is expressed in the following paragraph.

In our opinion, MCET complied, in all material respects, with the reporting requirements that are applicable to its major federal financial assistance program for the year ended June 30, 1991.

This report is intended for the information of the Board of Directors, management and federal financial assistance grantors. This restriction is not intended to limit the distribution of this report, which is a matter of public record.



September 10, 1991

SINGLE AUDIT REPORT ON COMPLIANCE WITH THE GENERAL REQUIREMENTS
APPLICABLE TO MAJOR FEDERAL FINANCIAL ASSISTANCE PROGRAMS

REPORT OF INDEPENDENT AUDITORS

Board of Directors
Massachusetts Corporation for
Educational Telecommunications

We have audited the financial statements of the Massachusetts Corporation for Educational Telecommunications (MCET) as of and for the year ended June 30, 1991, and have issued our report thereon dated September 10, 1991.

We have applied procedures to test MCET's compliance with the following requirements applicable to its major federal assistance program, which is identified in the schedule of federal financial assistance, for the year ended June 30, 1991:

- Political activity
- Civil Rights
- Cash management
- Federal financial reports
- Allowable costs
- Drug-free workplace
- Davis-Bacon Act
- Administrative requirements

Our procedures were limited to the applicable procedures described in the Office of Management and Budget's "Compliance Supplement for Single Audits of State and Local Governments." Our procedures were substantially less in scope than an audit, the objective of which is the expression of an opinion on MCET's compliance with the requirements listed in the preceding paragraph. Accordingly, we do not express such an opinion.

With respect to the items tested, the results of those procedures disclosed no material instances of noncompliance with the requirements listed in the second paragraph of this report. With respect to items not tested, nothing came to



our attention that caused us to believe that MCET had not complied, in all material respects, with those requirements. However, the results of our procedures disclosed immaterial instances of noncompliance with those requirements, which are described in the accompanying schedule of findings and questioned costs.

This report is intended for the information of the Board of Directors, management and federal financial assistance grantors. This restriction is not intended to limit the distribution of this report, which is a matter of public record.

Ernst & Young

September 10, 1991



REPORT ON THE INTERNAL ACCOUNTING CONTROLS STRUCTURE
IN ACCORDANCE WITH GOVERNMENT AUDITING STANDARDS

REPORT OF INDEPENDENT AUDITORS

Board of Directors
Massachusetts Corporation for
Educational Telecommunications

We have audited the financial statements of the Massachusetts Corporation for Educational Telecommunications (MCET) as of and for the year ended June 30, 1991, and have issued our report thereon dated September 10, 1991.

We conducted our audit in accordance with generally accepted auditing standards and Government Auditing Standards, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

In planning and performing our audit of the financial statements of MCET for the year ended June 30, 1991, we considered its internal control structure in order to determine our auditing procedures for the purpose of expressing our opinion on the financial statements and not to provide assurance on the internal control structure.

The management of MCET is responsible for establishing and maintaining an internal control structure. In fulfilling this responsibility, estimates and judgments by management are required to assess the expected benefits and related costs of internal control structure policies and procedures. The objectives of an internal control structure are to provide management with reasonable, but not absolute, assurance that assets are safeguarded against loss from unauthorized use or disposition, and that transactions are executed in accordance with management's authorization and recorded properly to permit the preparation of financial statements in accordance with generally accepted accounting principles. Because of inherent limitations in any internal control structure, errors or irregularities may nevertheless occur and not be detected. Also, projection of any evaluation of the structure to future periods is subject to the risk that procedures may become inadequate because of changes in conditions or that the effectiveness of the design and operation of policies and procedures may deteriorate.



For the purpose of this report, we have classified the significant internal control structure policies and procedures in the following categories:

- Payroll
- Purchases, cash disbursements and expenditures

For all of the internal control structure categories listed above, we have obtained an understanding of the design of relevant policies and procedures and whether they have been placed in operation and we assessed control risk.

We noted a certain matter involving the internal control structure and its operation that we consider to be a reportable condition under standards established by the American Institute of Certified Public Accountants. Reportable conditions involve matters coming to our attention relating to significant deficiencies in the design or operation of the internal control structure that, in our judgment, could adversely affect the entity's ability to record, process, summarize and report financial data consistent with the assertions of management in the financial statements.

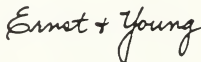
As described in finding number one of the accompanying schedule of findings and questioned costs, certain aspects of MCET's accounting practices were not consistent with an effective internal control environment during fiscal year 1991.

A material weakness is a reportable condition in which the design or operation of the specific internal control structure element does not reduce to a relatively low level the risk that errors or irregularities in amounts that would be material in relation to the general purpose financial statements being audited may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions.

Our consideration of the internal control structure would not necessarily disclose all matters in the internal control structure that might be reportable conditions and, accordingly, would not necessarily disclose all reportable conditions that are also considered to be material weaknesses as defined above. However, we do not believe the reportable condition described above is a material weakness.

We also noted other matters involving the internal control structure and its operation that we have reported to the management of MCET in a separate letter dated September 10, 1991.

This report is intended for the information of the Board of Directors, management and federal financial assistance grantors. This restriction is not intended to limit the distribution of this report, which is a matter of public record.



September 10, 1991



SINGLE AUDIT REPORT ON THE INTERNAL CONTROL STRUCTURE USED IN
ADMINISTERING THE FEDERAL FINANCIAL ASSISTANCE PROGRAM



REPORT OF INDEPENDENT AUDITORS

Board of Directors
Massachusetts Corporation for
Educational Telecommunications

We have audited the financial statements of the Massachusetts Corporation for Educational Telecommunications (MCET) as of and for the year ended June 30, 1991, and have issued our report thereon dated September 10, 1991. We have also audited MCET's compliance with requirements applicable to major federal financial assistance programs and have issued our report thereon dated September 10, 1991.

We conducted our audits in accordance with generally accepted auditing standards; Government Auditing Standards, issued by the Comptroller General of the United States; and Office of Management and Budget (OMB) Circular A-128, "Audits of State and Local Governments." Those standards and OMB Circular A-128 require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement and about whether MCET complied with laws and regulations, noncompliance with which would be material to a major federal financial assistance program.

In planning and performing our audits for the year ended June 30, 1991, we considered MCET's internal control structure in order to determine our auditing procedures for the purpose of expressing our opinions on MCET's financial statements and on its compliance with requirements applicable to major programs and not to provide assurance on the internal control structure. This report addresses our consideration of internal control structure policies and procedures relevant to compliance with requirements applicable to federal financial assistance programs. We have addressed policies and procedures relevant to our audit of the financial statements in a separate report dated September 10, 1991.

The management of MCET is responsible for establishing and maintaining an internal control structure. In fulfilling this responsibility, estimates and judgments by management are required to assess the expected benefits and related costs of internal control structure policies and procedures. The objectives of an internal control structure are to provide management with reasonable, but not absolute, assurance that assets are safeguarded against loss from unauthorized use or disposition, that transactions are executed in accordance with management's authorization and recorded properly to permit the preparation of general-purpose financial statements in accordance with

generally accepted accounting principles and that federal financial assistance programs are managed in compliance with applicable laws and regulations. Because of inherent limitations in any internal control structure, errors, irregularities or instances of noncompliance may nevertheless occur and not be detected. Also, projection of any evaluation of the structure to future periods is subject to the risk that procedures may become inadequate because of changes in conditions or that the effectiveness of the design and operation of policies and procedures may deteriorate.

For the purpose of this report, we have classified the significant internal control structure policies and procedures used in administering federal financial assistance programs in the following categories:

Accounting Controls

- Payroll
- Purchases, cash disbursements and expenditures

Administrative Controls

General Requirements:

- Political activity
- Civil rights
- Cash management
- Federal financial reports
- Allowable costs
- Drug-Free Workplace Act
- Davis Bacon Act
- Administrative Requirements

Specific Requirements:

- Reporting

Claims for Advances and Reimbursements

For all of the internal control structure categories listed above, we obtained an understanding of the design of relevant policies and procedures and determined whether they have been placed in operation, and we assessed control risk.

During the year ended June 30, 1991, MCET expended 100 percent of its total federal financial assistance under major federal financial assistance programs.



We performed tests of controls, as required by OMB Circular A-128, to evaluate the effectiveness of the design and operation of internal control structure policies and procedures that we considered relevant to preventing or detecting material noncompliance with specific requirements, general requirements, and requirements governing claims for advances and reimbursements that are applicable to MCET's major federal financial assistance program, which is identified in the accompanying schedule of federal financial assistance. Our procedures were less in scope than would be necessary to render an opinion on these internal control structure policies and procedures. Accordingly, we do not express such an opinion.

We noted a certain matter involving the internal control structure and its operation that we consider to be a reportable condition under standards established by the American Institute of Certified Public Accountants. Reportable conditions involve matters coming to our attention relating to significant deficiencies in the design or operation of the internal control structure that, in our judgment, could adversely affect MCET's ability to administer federal financial assistance programs in accordance with applicable laws and regulations.

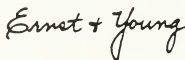
As described in finding number one of the accompanying schedule of findings and questioned costs, certain aspects of MCET's accounting practices were not consistent with an effective internal control environment during fiscal 1991.

A material weakness is a reportable condition in which the design or operation of one or more of the internal control structure elements does not reduce to a relatively low level the risk that noncompliance with laws and regulations that would be material to a federal financial assistance program may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions.

Our consideration of the internal control structure would not necessarily disclose all matters in the internal control structure that might be reportable conditions and, accordingly, would not necessarily disclose all reportable conditions that are also considered to be material weaknesses as defined above. However, we do not believe the reportable condition described above is a material weakness.

We also noted other matters involving the internal control structure and its operation that we have reported to the management of MCET in a separate letter dated September 10, 1991.

This report is intended for the information of the Board of Directors, management, and federal financial assistance grantors. This restriction is not intended to limit the distribution of this report, which is a matter of public record.



September 10, 1991

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SCHEDULE OF FINDINGS AND QUESTIONED COSTS

MASSACHUSETTS CORPORATION FOR EDUCATIONAL TELECOMMUNICATIONS

Year Ended June 30, 1991

<u>Program</u>	<u>Findings</u>	<u>Questioned Costs</u>
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- * 1. Due to staff limitations and not having a fully automated system, certain aspects of MCET's accounting practices were not consistent with an effective internal control environment. Namely, the general ledger was not routinely closed on a periodic basis, fixed asset records were not maintained throughout the year, bank reconciliations were not performed on a timely basis and no support was maintained for prior year audit adjustments. Substantial progress has been made in updating and maintaining records on more timely basis since year end. A fully automated system is now in place and staffing has increased.

Response

A fixed asset ledger of new additions was maintained by MCET during fiscal year 1991. Because Ernst & Young recommended changes to cause this to be a more effective accounting record, the ledger was redone. All information had been compiled prior to the end of the fiscal year.

Prior to fiscal year 1991, due to MCET's small size and the lack of complexity of the Corporation's accounting records, all such records had been created and maintained by the Corporation's independent auditors (fiscal year 1982 through fiscal year 1988, Peat Marwick Main; fiscal year 1989 and 1990, Gorsey & Woll).

In the process of converting to a fully automated accounting system, preparations had to be made to correctly close the general ledger on a timely basis. At no time during the fiscal year was there uncertainty regarding the Corporation's cash position.

Prior to closing the general ledger for the fiscal year, all accounts had been properly reconciled and posted to the general ledger.



SCHEDULE OF FINDINGS AND QUESTIONED COSTS--CONTINUED

MASSACHUSETTS CORPORATION FOR
EDUCATIONAL TELECOMMUNICATIONS

Year Ended June 30, 1991

<u>Program</u>	<u>Findings</u>	<u>Questioned Costs</u>
*	<p>2. MCET's disbursement procedures require that various approvals be obtained throughout the process and that all items be clearly marked as paid once the disbursement process is complete. Early in the year, these control procedures were not always followed. MCET made substantial progress in the latter part of the year and since year end, in ensuring that all control procedures are followed by all personnel involved in the process.</p> <p><u>Response</u></p> <p>MCET concurs with this statement.</p>	
*	<p>3. As a result of our testing, we did not find any situations of specific noncompliance with any of the general or specific requirements as outlined under OMB Circular A-128 or the Star Schools Grant. During 1991, however, Star Schools' Staff did not have formal policies and procedures in place to ensure compliance with all applicable laws and regulations relating to the Federal Star Schools Program. Senior management and legal counsel did demonstrate an appropriate awareness of all of the applicable laws and regulations required to achieve compliance under the grant documents. Following are policies which were not in place throughout the year:</p> <ul style="list-style-type: none"> • MCET did not have a full-time staff civil rights officer throughout the year and, therefore, compliance with laws and regulations regarding civil rights and discrimination was not monitored by staff having this specific responsibility. Compliance was, however, monitored by legal counsel. • MCET had adopted, but not issued, a drug-free policy statement documenting its policies regarding drug abuse in the work place. Also, MCET had not established a formal drug-free awareness program. 	



SCHEDULE OF FINDINGS AND QUESTIONED COSTS--CONTINUED

MASSACHUSETTS CORPORATION FOR
EDUCATIONAL TELECOMMUNICATIONS

Year Ended June 30, 1991

<u>Program</u>	<u>Findings</u>	<u>Questioned Costs</u>
	<ul style="list-style-type: none"> Although MCET monitored prevailing wage rates in accordance with Davis-Bacon requirements, they did not have a formal mechanism for determining compliance with, or the nonapplicability of, the compliance requirements relating to the Davis-Bacon Act and political activities. 	
	<p><u>Response</u></p> <p>Senior management and legal counsel were aware of all applicable laws and regulations, and demonstrated that awareness by compliance.</p> <ul style="list-style-type: none"> Ruth Ferguson, Deputy Director for Administration and Finance was designated Civil Rights Officer. Prior to Ms. Ferguson's designation, Attorney Arlene Lieberman was MCET's off-site Civil Rights Officer. MCET has issued its Drug-Free Workplace Policy and Program to all MCET employees and consultants. MCET monitored prevailing wage rates in accordance with Davis-Bacon, and had in place a certification process for determining compliance with or the nonapplicability of Davis-Bacon. 	
*	<p>4. As required by OMB Circular A-87, a plan for allocation of costs is required to support the distribution of any joint costs related to the grant program. All costs included in the plan should be supported by formal accounting records which substantiate the propriety of the eventual charges. Specifically, we noted the following:</p> <ul style="list-style-type: none"> During the year, MCET allocated salaries of employees in accordance with the original grant proposal document, notwithstanding that these budgeted costs did not always reflect actual experience. 	



SCHEDULE OF FINDINGS AND QUESTIONED COSTS--CONTINUED

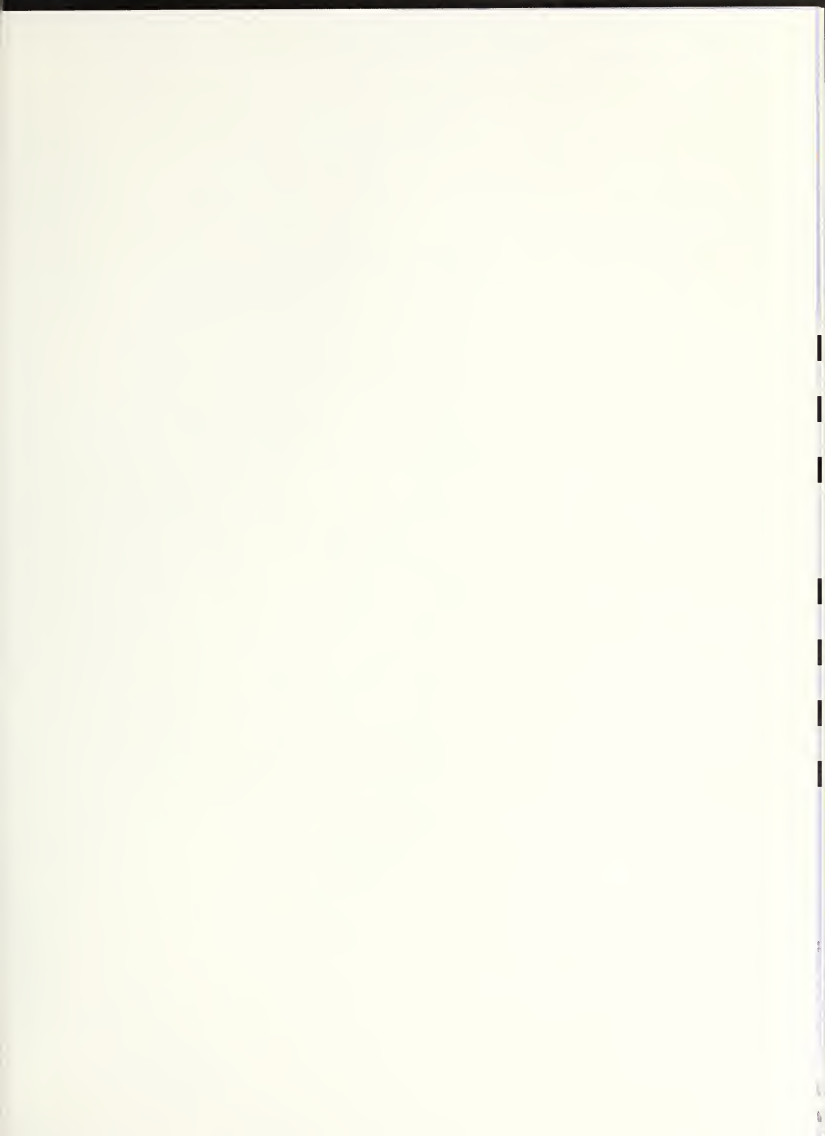
MASSACHUSETTS CORPORATION FOR
EDUCATIONAL TELECOMMUNICATIONS

Year Ended June 30, 1991

<u>Program</u>	<u>Findings</u>	<u>Questioned Costs</u>
	<ul style="list-style-type: none">• MCET does not have formal documentation to support the distribution of joint costs related to the grant programs, nor were formal accounting records kept which substantiate the propriety of the eventual charges. <p>It is not practicable at this time to determine whether this resulted in a net misallocation of costs.</p> <p><u>Response</u></p> <p>MCET believes that the allocation of salaries in fiscal year 1991 was an accurate reflection of contribution each employee made to the federal grant program.</p> <p>MCET believes it has all the necessary back-up documentation to justify the cost allocations and distribution of joint costs related to grant programs.</p> <p>MCET is confident that there is no net misallocation of costs.</p>	

*For the year ended June 30, 1991, MCET expended all of its federal monies under the Star Schools Program.







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MCET

MASSACHUSETTS CORPORATION FOR

EDUCATIONAL TELECOMMUNICATIONS

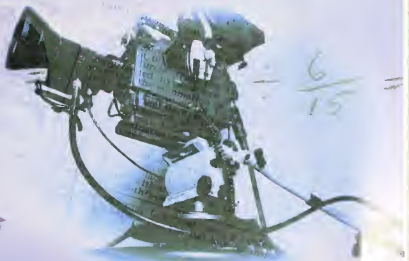
ANNUAL REPORT 1992

CREATING OPPORTUNITIES FOR EDUCATION,

FOR BUSINESS, FOR THE COMMUNITY.

EXPANDING INFORMATION,

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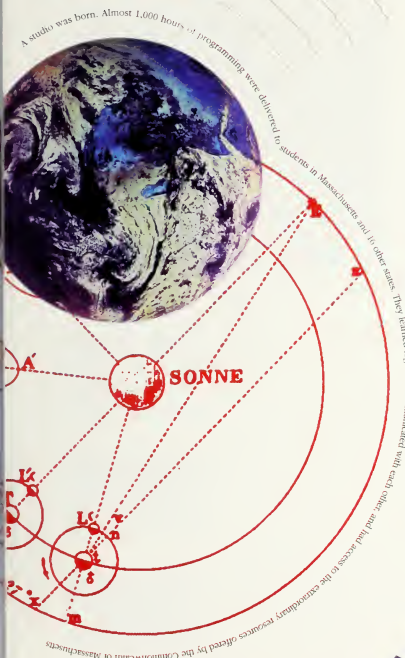
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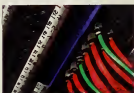
MCET utilizes multiple technologies to enhance learning: satellite broadcasts, phone links, computer network, mobile studio and uplink, fax, modem, videodisks, picture telephone, and hands-on curriculum materials.



Richard J. Snyder, Esq., Chairman



Inabeth Miller, Executive Director



The Mass LearnPike broadcast network serves public and non-public schools, higher education institutions, government, businesses, and the community.

Message from the Chairman and the Executive Director

A studio was born. Almost 1,000 hours of programming were delivered to students in Massachusetts and 16 other states: from instruction in DNA mapping and creative mathematics to creating an original production with the Boston Lyric Opera; from staff development in science to electronic field trips and sheep shearing at Drumlin Farm; from interaction with Nobelist Dr. Dudley Herschbach and Massachusetts legislators to an examination of the Rodney King verdict. Our students learned together, communicated with each other, and had access to the extraordinary resources offered by the Commonwealth of Massachusetts.

The Board of Directors managed the many issues of an agency on a fast growth curve. Fiscal responsibility and reporting, as well as cost containment, became new imperatives. The Board searched to understand the nature of MCET's activities and the choices inherent in expansion, and to define MCET's role within the state telecommunications structure. The Board accepted a grant from the U.S. Department of Commerce for a mobile studio/uplink, as an entrepreneurial endeavor, and decided to apply for new Star Schools funding. The Board voted to enlarge itself by adding new constituencies, formed committees to discuss finance and personnel, and also participated in the strategic planning process.

During Fiscal Year 1992, MCET was recognized with two national awards: "Most Outstanding Distance Education Network" by the United States Distance Learning Association, and for "Outstanding Contributions to Distance Learning," the 1992 Learning by Satellite journal award.

MCET has benefited from the cooperation of the many cable companies that have wired communities, offered education channels, built studios, and brought our programs to cable subscribers in member communities. The Mass LearnNet computer network with access to the Internet, has become increasingly important to MCET educators by extending the satellite broadcast experience and by reinforcing learning as part of a continuous process.

A national conference on interactivity, funded by the Sloan Foundation and Raytheon Corporation, took place in February bringing together leaders in human development, evaluation, and distance learning to examine the interactivity pocket, cost effectiveness, and new tools for evaluation. This conference provided an opening to a national conversation on interactivity. Discussion continued through the year with an MCET teleconference and at conferences throughout the country.

MCET's Star Schools program, Reach for the Stars (RFTS), continued to foster change in science education throughout the Northeast. The data now emerging at the close of the project demonstrate that all 59 Star Schools sites have experienced significant impact on how science is taught and learned. The federal government's financial assistance has significantly enhanced MCET's ability to serve not just RFTS schools, but all other member districts as well. A professional studio and staff, and a critical mass of live, interactive programs have been implemented with outside funding.

It is this synergy of state, federal, corporate, and foundation dollars that has allowed MCET and the Mass LearnPike to flourish. Recognition by the Massachusetts Legislature of MCET's contributions to education and the equitable distribution of resources provide the foundation for many achievements and widespread educational credibility. MCET will continue to build upon its growing reputation for excellence and to respond to the needs of its diverse constituency.



MCET

The Massachusetts Corporation for Educational Telecommunications (MCET) is a quasi-autonomous public corporation of the Commonwealth of Massachusetts established by Chapter 560 of the Acts of 1982. MCET has created a vision for the future of distance learning as evidenced in its education mission statement:

To take leadership in telecommunications-based education by altering the relationship between people and learning from passive to interactive by providing responsive, cost-effective, innovative programs that utilize multiple technologies.

This vision has been realized through MCET's satellite broadcast network, the Mass LearnPike; the multi-technology, science-based research project, Reach for the Stars; the Mass LearnNet computer network; and the Higher Education Consortium.



Taught by Larry Davidson, Creative Mathematics explores recursion, number theory, fractals, chaos, and cryptography.

Mass LearnPike programs cover a broad range of subjects for K-12 and staff development: science, mathematics, foreign language and culture, arts, and social studies. Most courses are designed as five to ten-session modules.

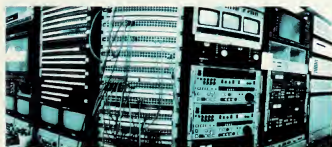


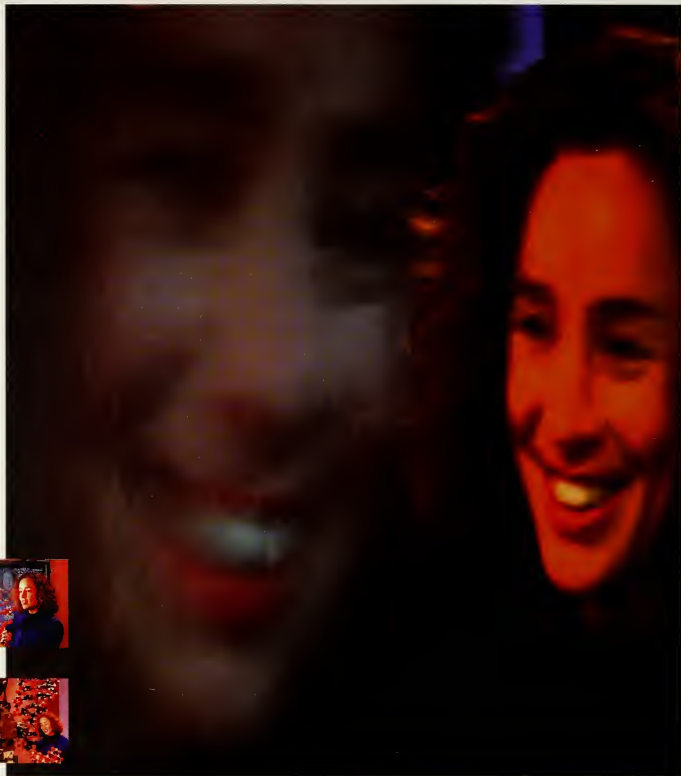
The Mass LearnPike

The Mass LearnPike, MCET's satellite-based K-12 education network, celebrated its second year of broadcasting by expanding the breadth of programming to more than 900 hours in 1992. The emphasis on live and interactive programming via one-way video and two-way audio, combined with hands-on curriculum materials, continued to distinguish MCET from other distance learning providers.

Mass LearnPike members participated live and in real time with other students, teachers, administrators, and parents. Interaction and learning is enhanced by the variety and diversity of participants. MCET's site coordinators, developers, and presenters emphasized and promoted ways to integrate Mass LearnPike offerings into classroom curriculum.

During Fiscal Year 1992, the Mass LearnPike enhanced its selection of subject areas to include science, education, art/music/dance, social studies, mathematics, technology, language arts and literature, foreign languages and culture, and special education for the multiple members of the learning community of students, teachers, administrators, and parents. Local cable television connections to school buildings provided greater access and equity for all members of the community.





Host Robin J. R. Blatt and guest experts explore scientific, social, legal, and ethical issues in The Human Genome, funded by the National Institutes of Health.

Membership Expansion

Massachusetts

With the addition of 55 new Massachusetts school memberships MCET provided 185 satellite downlink sites across the Commonwealth. With cable links MCET programs could reach schools, public facilities, community services, homes, and businesses in nearly 250 cities and towns. Site coordinators provided support in the use of satellite technology, the computer network, and program utilization in meetings, regional clinics, hands-on workshops, conference presentations, and through satellite teleconferences for school administrators, curriculum coordinators, media specialists, and teachers.

Out of State

School districts in sixteen states—all the New England states, New York, New Jersey, Washington (D.C.), Michigan, Nebraska, North Dakota, Oregon, California, Missouri, and Virginia—purchased subscriptions for Mass LearnPike program services in 1992. Demographics span the range of urban, suburban, and rural districts and of poor, middle-income, and wealthy communities. Along with providing revenue to MCET, the inclusion of these districts brings a richness to the quality of the interaction among participants and adds a valuable national perspective.



Higher Education Consortium for Distance Education

The Higher Education Consortium for Distance Education (HEC) was established in autumn 1991, with the mission "to apply advanced technologies to make information more accessible and education more effective." During 1992 thirteen Massachusetts colleges and universities formed the consortium, including both private and public colleges. A self-managed organization, HEC is now considering pro-

gramming ideas and exploring funding resources for programming in areas such as adult education, teacher preparation (in association with K-12 programs on the Mass LearnPike), social issues, and management topics such as Total Quality.

The Mass LearnNet

MCET's computer network, the Mass LearnNet, served teachers and administrators through a variety of mechanisms. Electronic mail and conferencing enabled teachers and administrators from various sites across the country to discuss curriculum issues, education reform, and school structure. The network linked teachers and allowed them to shift the time of their interactions with Mass LearnPike presenters.

The Mass LearnNet electronic evaluation forms provided valuable feedback on programming to MCET staff and program developers. The Mass LearnNet's on-line registration capabilities allowed members to register more easily and quickly for programs. Access to the Internet afforded members broader resources through bulletin boards and listservs.



Noted educator, Dr. Robert Tinker, Chief Science Officer at TERC, presents Creative Physics, a hands-on course for students who would not usually take physics.



Through the U. S. Department of Commerce, N.T.I.A., the MCET mobile studio and uplink provides widespread access to advanced video technology and adds two-way video capacity to Mass LearnPike programs.



Program Funding Partnerships

Reach for the Stars

Reach for the Stars, a two-year U.S. Department of Education Star Schools research project, entered its second year of implementation and service to 59 middle school sites in New England and New York. This project utilized multiple technology products and programs including videodisk, computer, video, fax, print, and kits to improve science teaching and learning in grades 5-8. A team of two teachers (one who focused on science and one who focused on another discipline) created curriculum plans for integrating the technologies, subject matter, and hands-on activities, and developed interdisciplinary connections. Teachers received training and support from MCET's team of site coordinators, communication on the Mass LearnNet computer network, participation in regional workshops, and special teleconference series broadcast over the LearnPike.

RFTS teachers, students, administrators, and parents actively participated in satellite broadcasts designed around discussions of school reform and staff development. Interactive videodisk programs and computer-based telecommunications units also introduced new methods of teaching and learning science, emphasized interdisciplinary ties, and promoted cooperative learning and investigative problem solving. Members of each school community formed Science Improvement Teams to develop and implement Science Action Plans after the grant period, in order to extend the goals of the Reach for the Stars project. Each team identified its goals and objectives, created implementation strategies, and identified available community and regional resources.

Preliminary evaluation of case study sites indicated a wide range and diversity of implementation models. The most compelling areas of change encompassed staff and school commitment, professional growth opportunities, appropriate programming, strong implementation framework, and technical assistance and support.

The Mobile Uplink/Production Studio

MCET received a grant from the Public Telecommunications Facilities Program (PTFP) of the U.S. Department of Commerce, National Telecommunications and Information Administration, for the construction of a state-of-the-art mobile satellite transmission and production studio. This mobile studio will enable MCET to produce programs from remote locations that can be transmitted live by satellite to members of the Mass LearnPike and beyond. The van is a major asset to the Commonwealth because it brings the technical capacity of the LearnPike to its members, and therefore a unique form of access to advanced technology to all citizens. In addition, it represents a source of revenue for MCET since it has the most sophisticated production and telecommunications facilities currently on the market.



Neurosciences: The Body, The Environment, Our Future

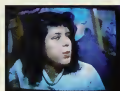
The General Cinema Charitable Corporation Foundation provided a grant for the development and production of this five-part staff development series for high school biology teachers, focusing on the neurosciences and related diseases. Broadcast begins in January 1993.

The Human Genome Project

The National Institutes of Health committed funds for an innovative high school course to teach the history and the social, legal, and ethical issues surrounding the Human Genome Project's genetic research.

Learning to Lead

For the second year, Bull HN Information Systems provided funding for this five-part teleconference series to teach high school students about the legislative process and give them the opportunity to interact with lawmakers.



Former New England Patriots football player, Lin Dawson hosts Project TEAMWORK developed by the Center for Sport in Society at Northeastern University for middle and high school students.





Animal behaviorist, educator, and conservationist, Dr. Deborah Schildkraut shares knowledge from her years of research on the great apes in the five-part Planet of the Apes.

Awards and Recognition

The United States Distance Learning Association (USDLA) recognized the Mass LearnPike with the award for Most Outstanding Distance

Education Network at the Tenth Annual Telecon awards ceremony.

Learning by Satellite journal honored MCET with an award for outstanding contributions to distance education and for innovative programming for K-12 students and teachers.

MCET, the Mass LearnPike, and the Reach for the Stars project enjoyed widespread attention in the local and national media. For example, the February 1992 issue of Ed, the USDLA journal, was devoted entirely to MCET; and in May, CNN's Futurewatch featured the innovative multi-technology project Futurevision, developed by Reach for the Stars.

MCET has built a coalition with other leading distance learning networks across the United States to share programming, to consult on issues, and to collaborate on marketing efforts.



Elementary school students sing along on the MCET audiobridge with Gary Rosen's musical performances.

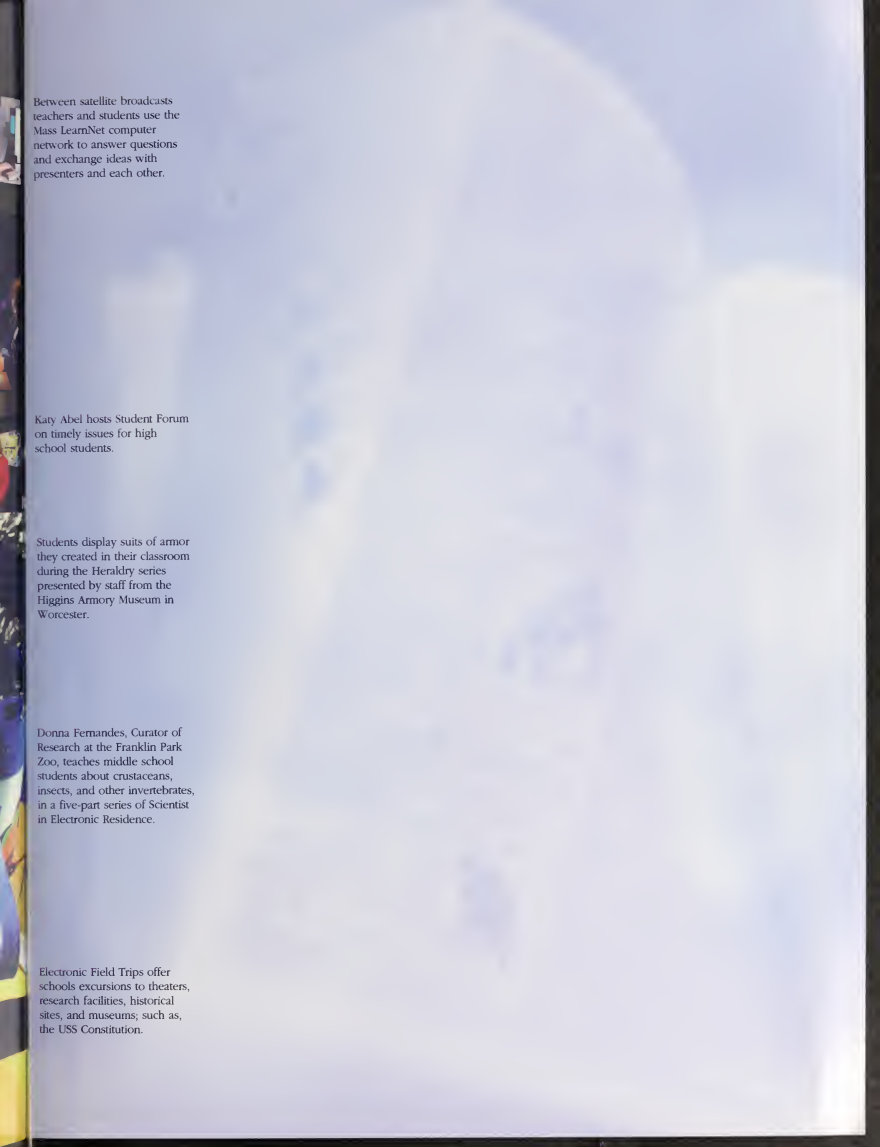
For many school systems MCET provides the only arts and music resources available to students. Through Mass Performance and Artist in Electronic Residence performing artists work on projects with whole classes.



Soft sculpture artist Barbara Ward teaches Okakagbe, the art of African mask making.







Between satellite broadcasts teachers and students use the Mass LearnNet computer network to answer questions and exchange ideas with presenters and each other.

Katy Abel hosts Student Forum on timely issues for high school students.

Students display suits of armor they created in their classroom during the Heraldry series presented by staff from the Higgins Armory Museum in Worcester.

Donna Fernandes, Curator of Research at the Franklin Park Zoo, teaches middle school students about crustaceans, insects, and other invertebrates, in a five-part series of Scientist in Electronic Residence.

Electronic Field Trips offer schools excursions to theaters, research facilities, historical sites, and museums; such as, the USS Constitution.

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ANNUAL REPORT 1992

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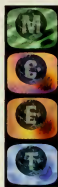


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Annual Report 1993



Inabeth Miller
Executive Director



A Year to Remember

by Inabeth Miller and Richard Snyder

It has been a most important year in establishing a strong membership and faculty base, refining expertise, and experimenting with new technological tools that enhance and facilitate learning for students of all ages, backgrounds, and needs.

Programming

This year the President of the United States introduced the Mass LearnPike program "Learning to Lead," in which 4,000 children throughout the nation debated the Brady Bill. Vice President Gore and numerous members of Congress participated with high school students in the five-part live interactive series sponsored by Bull Worldwide Systems. For the final program Bull brought six students to Washington for two days where they had an opportunity to view the Constitution and Bill of Rights, eat on the lawn of the White House, visit their Representatives, and participate in a live program. It was a thrill for everyone, summed up by one boy from Carrollton,

Texas, who said to his school committee, "Do you know what it felt like to ask a question and think that you were in the smartest school in America?"

In addition to such successful productions as "Mystery Writers," "Scientist in Electronic Residence," and "Creative Physics," MCET and its faculty offered new programming throughout the year. One MCET debut was a series for teachers by Harvard Medical School, "Neurosciences," which tested the case study method as applied to teachers—and this year to students. With generous support from Harcourt General, every participant had his/her own kit of materials (case histories, EEG, X-ray, penlight, reflex hammer), to actively pursue the problem of what was wrong with Mary in "Mary's Mystery."

"Quintalingal 7" provided elementary school students with the opportunity to study seven languages simultaneously. With the magic of their inspired

teacher,
Lee
Riethmiller,

children began a love of other cultures and languages that will remain a part of their lives.

The MCET mobile truck was used regularly for electronic field trips and two-way video communications with many member and subscriber schools.

Programming on the new PictureTel video-conferencing network brought students from Tokyo and Paris in communication with students from Massachusetts. Community-based organizations in New York City, Hartford, and Boston are talking to each other, planning together, and offering joint courses in our new U.S. Department of Education Star Schools Program grant, The Learning Community.

Membership

The Mass LearnPike is an example of what Massachusetts does best: exporting one of its most

*Richard J. Snyder
Chairman*



valuable
prod-
ucts—

education. Schools in nearly all Massachusetts communities are now members of the Mass LearnPike. This has been a big year for growth in national and international subscribers. Thirty-seven states in total have participated in our programs. Montreal, Quebec, and Bermuda also receive MCET offerings. The Higher Education Consortium now includes 24 Massachusetts colleges and universities.

Board of Directors/ Advisory Council

We said farewell to Ken Ryder, who had helped to guide MCET since its inception, and to Anne Bailey Berman, who had worked on solidifying relations with the cable industry. We welcomed Secretary of Education Piedad Robertson, Bentley College President Joe Cronin, and Mass Bay Community College President Roger Van Winkle to our Board, as well as Groton-Dunstable Regional

School District Superintendent John Barranco, who is also the new Director of the Merrimack Education Center and Chairman of the MCET Advisory Committee. Board activities have included the adoption of a new personnel policy, the acceptance of a compensation program, and the beginning of a strategic planning process, led by Andersen Consulting. We also welcomed seven new Advisory Council members.

Future

MCET has begun working with the Executive Office of Education and the Division of Capital Planning and Operations on the statewide education technology infrastructure it has been designated to implement. In addition, we are expanding the growth of the Mass LearnNet computer network, which is becoming an essential component of program delivery.

We are also looking toward a transition to digital compression, preparation for the utilization of alternative

communications technologies, working with both the cable and telephone industries, and the introduction of courses on demand. The Strategic Plan will be essential in guiding MCET at an important moment in society's technological growth and change.

MCET has become a partner in the Massachusetts Department of Education's National Science Foundation-funded Project PALMS: State Systemic Initiative to improve mathematics and science learning in K-12. MCET will assist in the training of teachers and dissemination of statewide curriculum frameworks through multiple science, math, and technology courses for teachers, students, parents, and other community members.

It has indeed been a most important year.



MCET

The Massachusetts Corporation for Educational Telecommunications (MCET) is a quasi-autonomous public corporation of the Commonwealth of Massachusetts (established by Chapter 560 of the Acts of 1982 as amended). MCET has created a vision for the future of distance learning as evidenced in its education mission statement:

To take leadership in telecommunications-based education by altering the relationship between people and learning from passive to interactive by providing responsive, cost-effective, innovative programs that utilize multiple technologies.

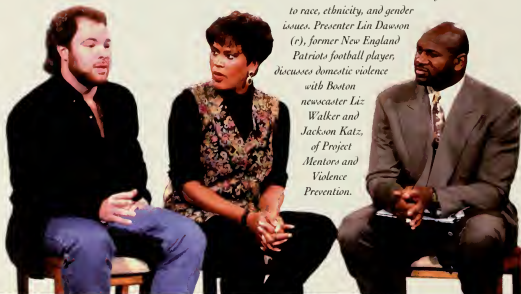
This vision is being realized through MCET's satellite broadcast network, the Mass LearnPike; the Mass LearnNet computer network; the multi-technology, community-based research project The Learning Community; and the Higher Education Consortium.

MCET's wide-reaching presence in the Commonwealth, as well as across the country and internationally, is bringing multi-technology networks—including satellite, computer, videoconferencing, telephone, and other communications systems—to assist in teaching and learning across all social, economic, and ethnic boundaries.

The Commonwealth of Massachusetts provides primary financial support for the Mass LearnPike's programming. Federal funding sources include the U.S. Department of Education, The National Institutes of Health, the Public Telecommunications Facilities Program of the U.S. Department of Commerce, and the National Science Foundation.

MCET receives additional support from local and national corporate and foundation grant funding, and national subscribers.

"Project TEAMWORK" is designed to raise middle school students' sensitivity to race, ethnicity, and gender issues. Presenter Lin Dawson (r), former New England Patriots football player, discusses domestic violence with Boston newscaster Liz Walker and Jackson Katz, of Project Mentors and Violence Prevention.



The Mass LearnPike

The Mass LearnPike, MCET's distance-learning national satellite network, continued to offer live, interactive programming for students in grades

K-12 during its third year of broadcasting. The Mass

LearnPike presented 75 interactive programs and series via

one-way video and two-way audio, complemented with hands-on curriculum materials. Most programs were designed as five- to ten-session modules that could be incorporated into a teacher's schedule. Participants throughout Massachusetts and 37 other states were instructed in science, math, social studies, geography, history, art, foreign languages and cultures, dance/music, literature, and staff development. By producing five and one-half hours of live programming each day, the Mass

LearnPike provided schools and communities with access to otherwise unavailable, new and innovative resources.

Many programs provided participants with hands-on materials that were instrumental in turning the passive experience of

watching television into active participation. These materials

were mailed to

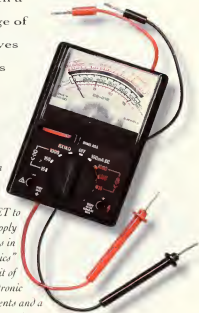
each registered site and outlined the objectives of the program. The materials instructed the participants how to prepare and included suggestions for follow-up activities and resources that participants used to extend their learning beyond the televised sessions; for example, elementary students carded wool and felt feathers while being introduced to lambs and chickens from Drumlin Farm.

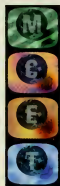
Educational programming was also expanded to incorporate local communities, teachers, administrators, parents, and the higher education community. The

Mass LearnPike linked selected community centers in Boston and Salem, Massachusetts; Hartford, Connecticut; and New York City, and reached homes through PictureTel and cable television in many communities.

In addition, the Mass LearnPike experienced an increasing international presence in 1993. Teachers in Bermuda participated in staff development courses. Through MCET's PictureTel videoconferencing facilities, Mass LearnPike programming was able to include guests from countries such as Spain and Japan, providing students in the United States with a wide range of perspectives and points of view.

A grant from Raytheon Company enabled MCET to supply participants in "Creative Physics" with a kit of electronic components and a multimeter.





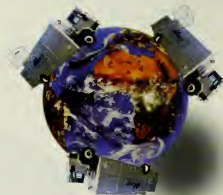
The Mass LearnNet

MCET's computer network, the Mass LearnNet, is the fastest-growing service of the corporation, nearly doubling its number of users.

This extraordinary growth was the result of several elements: widespread interest among educators in the information resources available through the Mass LearnNet; a growing need for collaboration and support opportunities beyond the school building; and MCET's response to the needs of educators to extend interaction beyond the length of Mass LearnPike broadcasts.

The Mass LearnNet provides Mass LearnPike users with the opportunity to interact with each other, LearnPike faculty, and MCET staff. Mass LearnNet users obtain up-to-date program information, register for programs, and fill out evaluation forms online. The Mass LearnNet provides a gateway to the Internet, offering access to national and international databases, discussions, and resources.

MCET provides training and technical support for Mass LearnNet users through hands-on workshops, videos, live broadcasts and manuals; as well as online, print, and telephone assistance.




MCET's fully equipped mobile production studio travels to remote sites to transmit Mass LearnPike programming: to member and subscriber classrooms, capturing students' live participation with two-way video, as well as two-way audio, interaction; and producing LearnPike programs far away from its Cambridge studio.



"It's very important for the faculty and students and community to have a connection to the rest of the world. I have a pat expression, 'Building Bridges with Technology.' This is one way to do it."
Debbie Schlegel,
teacher, Hyannis





Tools for Learning: Supportive Technologies

Mass LearnLike Satellite Network

MCET operates broadcast-quality, state-of-the-art production facilities with expert staff and crew trained in live and interactive television. The facility is equipped with a complete Ku-band uplink, two separate downlinks, and a fiber optics link to New England Telephone. MCET also operates a fully equipped mobile production studio with live satellite uplink capability.

Mass LearnNet Computer Network

The Mass LearnNet currently uses a VAX system at Merrimack Education Center in Chelmsford, Massachusetts.

PictureTel Videoconference Unit

MCET's PictureTel system 4000 videoconference unit allows for two-way, point-to-point audio and video communication, connecting to more than 2,000 similar facilities worldwide, and is available to educational, government, and business users.

Interactive Videodisc Programs

MCET supports the development and piloting of educational videodisc programs that combine video footage, graphics, and computer software.

Multimedia Kiosk

With video and classroom footage from MCET's live satellite programs, students create multimedia presentations combining the contained video and audio with other audio and video sources.

Integrated Learning Systems

The Learning Community is collaborating with Instructional Systems, Inc. and State University of New York/Albany in developing the *In-home Math Remediation Project*, which combines computer telecommunications with live instruction delivered via cable to students and their families at home.



"This is an invaluable resource that broadens a student's understanding of history. It provides a perspective not covered by the text and explores the subtle shading of personalities in a very efficient visual manner. This resource has really captured the imagination of faculty and students with programming utilized in every discipline and educational level in the system. If used correctly, instructional television is a valuable tool to aid in the learning process."

Daily Evening Item, Lynn, MA





1993 Program Funding Partnerships

The Learning Community

MCET's The Learning Community (TLC) project, funded under a two-year, \$4.6 million grant from the U.S. Department of Education Star Schools Program, uses multiple technologies and a project-based learning approach to support learning for children and adults in science, mathematics, and literacy. TLC links learning in schools and other formal educational environments in Boston, Hartford, and New York City with learning in out-of-school settings.

Schools, community-based organizations, and a group of nationally recognized education researchers, developers, and providers are partnering with MCET on TLC, including: Education Development Center, Inc., Tom Snyder Productions, Inc., Instructional Systems, Inc., Multimedia Research, Inc., State University of New York, Talcott Mountain Science Center, University of Maine, Education Satellite Network, Satellite Educational Resources Consortium, and TEAMS (Apollo 2000).

The Human Genome Project:

Exploring the Scientific and Humanistic Dimensions

The National Institutes of Health Ethical, Legal, and Social Implications Program is providing three-year funding for "The Human Genome Project," the Mass LearnPike's interdisciplinary high school project, featuring live interactive broadcasts, which stimulates students and adults to examine and debate

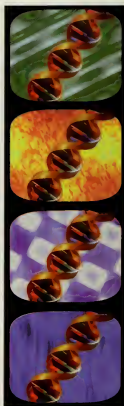
the history and issues surrounding current scientific developments in biotechnology and human genetics research.

Statewide Telecommunications Network

Through a planning grant from the Public Telecommunications Facilities Program, U.S. Department of Commerce, MCET is working with the Executive Office of Education to plan a statewide telecommunications network consistent with the Massachusetts Educational Reform Act that integrates video, data, and voice services.



Robin J.R. Blatt, MPH, host of "The Human Genome Project," started working with 25 teachers selected nationally in a two-week summer research and evaluation program.



Learning to Lead

Bull HN Information Systems has provided funding for "Learning to Lead," a teleconference series that teaches the legislative process through researching, polling, and debating.



In "Learning to Lead," high school students discussed the Brady Bill with members of Congress, including Sen. Nancy Kassebaum (R-KS) and Sen. Edward Kennedy (D-MA); and

representatives of Handgun Control, Inc. and the National Rifle Association. President Clinton and Vice President Gore appeared in exclusive segments.

Creative Physics

Raytheon Company and NEC Foundation of America have provided funding for "Creative Physics," a hands-on, project-oriented approach to physics using satellite and computer telecommunications.

Project Go-VISIT

MCET joins Bolt Beranek and Newman (BBN), Earthwatch, Boston College, NYNEX, and Apple as a partner in the design team for a New American Schools Development Corp. award. Co-NECT involves three Boston and Worcester public schools in applications of multiple technologies to create student-initiated, project-based investigations around the eight key curriculum standards and the National Education Goals.

Devoted to Science

The Arthur D. Little and Millipore Corporation Foundations are funding these elementary staff development programs in physical science.

"A Private Universe" Project

MCET is administering the National Science Foundation (NSF)-funded Harvard-Smithsonian Center for Astrophysics video project, a series of broadcast programs on students' preconceptions in science.

Testbed 1: A Community of Explorers

MCET is working with BBN (funded by NSF) on developing and supporting training programs for biology and physics teachers in the use of the Internet and simulation software.

Project SSSD (Science Education through Experiments and Demonstrations)

NSF is funding this science course for middle school teachers as part of a multi-year leadership training institute with Northeastern University.



1993 Program Funding Partnerships

Project G.E.S.A.M.E

MCET will disseminate K-12 projects from CESAME (Center for the Enhancement of Science and Mathematics Education, Northeastern University), which is supported by the 1993 Innovations in State and Local Government Awards Program, sponsored by the Ford Foundation and the Kennedy School of Government, Harvard University.

Neurosciences:

The Body, The Environment, Our Future
Harcourt General Charitable Foundation provided the pilot funds for this secondary series developed with

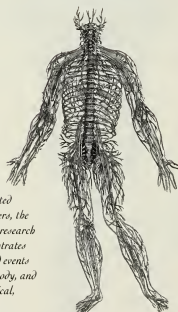
Harvard Medical School that focuses on the neurosciences and related diseases.

"Neurosciences" co-boot Dr. Joan Reece
Through the use of simulated physician/patient encounters, the program presents current research on brain function, demonstrates how behavior, disease, and events can affect the brain and body, and introduces the latest medical, diagnostic, and imaging techniques. This was the first part of a teacher-student project.

Through "Contemporary Great Minds," students and teachers talked directly to distinguished scholars who have changed the way we think.

"It was the most incredible experience. One student said later that Howard Zinn was mentoring her. They were an interesting mix of kids—bright and low level. They were very impressed."

Wendy Wilson,
Lexington High School, MA



Japanese Society

This cultural enrichment multimedia series is underwritten by the Center for Global Partnership. Through satellite, PictureTel, and e-mail, high school students learn about Japanese culture, current events, and teen issues.

Opera for Children


The Clowes Fund, Inc. supported this series with the Boston Lyric Opera for elementary school students on elements of an opera, including an electronic field trip to a production in progress and live performance of children's original operas.



ONE VOICE

ONE VOICE is a pilot project, created with funding from NYNEX Corp. and New England Telephone, employing a telephone voice messaging system within a school community to provide two-way, voice mail capability between teachers and parents.





Recognition

MCET's Executive Director, Dr. Inabeth Miller, was elected president of the United States Distance Learning Association (USDLA) at its Annual Telecon meeting in San Jose, California. Dr. Miller also had the opportunity to serve on President Clinton's Education Transition Team promoting the value of integrating technology and education.

The Epilepsy Association of Massachusetts honored MCET's "Neurosciences" and Harvard Medical School with the 1993 Community Service Award. The USDLA also recognized MCET with a second-place award for outstanding educational programming.

A Shrewsbury, Massachusetts high school teacher won the Cable in the Classroom Innovations Award for creative use of cable television as a teaching tool

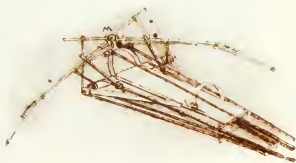
for her integration of the Mass LearnPike's "Japanese Society" series into her curriculum. And John Nelson, host of the Mass LearnPike series "Get Moving!", won the IDEA/David Essel Scholarship Award for his fitness education program having the most outreach.

MCET and the Mass LearnPike received many accolades in the local, regional, and national news media. *The Boston Globe* and the *Boston Business Journal* published feature stories on MCET as did a wide variety of regional and local news outlets. Staff members at MCET also wrote articles that were published in the national trades, including *Computing Teacher*, *Satlink*, *Ed*, and *Arts in Education Primer*.



Machines, Flight, and Pendulums

As part of the "Devoted to Science" staff development series, Fred Stein of the Science Discovery Museum engaged K-5 teachers in creating fun and exciting science experiments through hands-on activities that illustrated the often unexpected properties of the physical world.





Membership

During FY93, MCET added 43 school districts throughout the Commonwealth as Mass LearnPike members. New members included public and regional schools, regional vocational schools, and private and parochial schools. There are now 240 Massachusetts school districts who are Mass LearnPike members. With cable links, MCET programs can reach schools, public facilities, community services, homes, and businesses in more than 325 cities and towns.

Mass LearnPike Site Coordinators provided support in the use of satellite technology, the Mass LearnNet computer network, and program utilization through

- electronic meetings
- regional clinics
- hands-on workshops
- conference presentations
- satellite teleconferences for school administrators, curriculum coordinators, media specialists, teachers, and the district's Network Liaison

- MCET product incentives: lunch bags, tote bags, baseball caps, mugs, highlighters, and pencils

Monthly program description and update mailings were sent to members and national subscribers.

MCET also developed an effective Mass LearnPike User's Guide and a new quarterly newsletter.

The Roxbury Outreach Shakespeare Experience (shown below) was one of the many "Artists in Electronic Residence." In these five-week residencies, students worked along with practicing artists, from dancers and mimes to painters and musicians, to explore a particular art form.





National/International Subscribers

Through a combination of subscription contracts and grant-funded audience development, Mass LearnPike programming had the participation of multiple school district communities from 37 states in the continental United

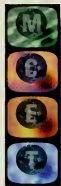
States, including six U.S. Army post schools, plus the Bermuda Ministry of Education. These sites represent a wide range of demographics, from urban, suburban, and rural to poor, middle-income, and wealthy communities. This utilization

of the technology to connect communities with each other in a shared teaching and learning experience not only fulfills federal funding mandates but enriches the depth of Mass LearnPike programming.

"It gives you a feel for what's on the minds of kids all over the country. Some of the kids who called in today asked questions that I never would have thought of asking." One classmate agreed, "It's a pretty upper-middle class, white group in there. Other schools are able to bring ideas that we don't have to the discussion."

*North Andover Citizen,
North Andover, MA*





Faculty

From physicist to poet to puppeteer, MCET faculty members are outstanding sources of educational programming for the entire K-12 community. These talented educators excite the intellectual curiosity of students and teachers and engage their active participation as performers, artists, authors, scientists, critics, and shapers of social policy. MCET seeks out faculty whose experience and current work connects students and teachers with the world beyond the classroom.

Many Mass LearnPike programs were the product of collaborations with cultural, historical, and scientific organizations. The French Library and The Goethe-Institut Boston both continued their successful foreign language series. USS Constitution Museum, Boston Lyric Opera, The Children's Museum, Franklin Park Zoo, and the New England Science Center are a few of the many institutions that worked directly with students.

The "Contemporary Great Minds" series enabled students to talk directly with distinguished individuals who have changed the way we think, including Howard Zinn, Howard Gardner,

Sissela Bok, and Stephen Jay Gould. High school students questioned Nobel Laureates Dudley Herschbach, Rosalyn Yalow, Joseph Murray, and Jerome Friedman about the development of their ideas.

In several programs, the technology of the Mass LearnPike enabled students to travel with scientists to where they conduct their research. As part of the theme of water and the living environment, Mass LearnPike programs took students on a whale watch with Roger Payne of the Whale Conservation Institute and on a survey of our declining fisheries aboard the Enviro-Lab, UMASS's 65-foot research vessel. Middle school students explored the Atlantic floor with the Oceanic Research Group

Mass LearnPike arts programs brought into classrooms artists noted for their skill and accomplishments who also have reputations as excellent teachers. Students danced with Martha Armstrong Gray, mimed



"Mushroom breath, moi?"
Lee Rietmiller inspires elementary school students to love and appreciate foreign languages and cultures in "Quintalingual 7," where they are immersed in seven languages at the same time: Spanish, French, Portuguese, German, Italian, Arabic, and Japanese. As one teacher wrote: "The third graders had a buono, ne, bom, beueno, gut, bon, and jazecem time!"

with Trent and Melodie Arterberry, wrote poetry with Martín Espada, sang the blues with jazz harpist Deborah Henson-Conant, and made their own books with Sarah Sutro. Dance Umbrella helped students learn about the World War II Japanese internment with choreographer Yukio Shiroma. By constructing helmets, shields, and their own coats of arms with the Higgins Armory, students learned about the age of heraldry. The Underground Railway Theater worked with classes to dramatize episodes in the life of Harriet Tubman through shadow puppetry. Well-known children's authors and illustrators, including Giles Laroche, Jane Yolen, Natalie Babbitt, Kathryn Lasky, Lois Lowry, and Dorothy and X.J. Kennedy, conversed with readers about their books.

The Mass LearnPike continued to emphasize the work of science educators. Teachers participated in "Microcosmos," taught by Douglas Zook, Boston University, and Ricky Carter's "Middle

School Math Inquiry."

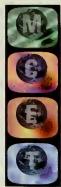
Robert Tinker developed an innovative high school curriculum, "Creative Physics." "Scientists in Electronic Residence" included Donna Fernandes from the Franklin Park Zoo, who shared her fascination with arthropods, and animal behaviorist Deborah Schildkraut, who introduced students to the great apes. Winifred Sanchez Eisan, Harvard Museum of Comparative Zoology, helped students overcome their fear and misconceptions about bats, spiders, and other "animals nobody loves." Paul Evans of The Children's Museum helped students bake cakes and make ice cream to learn about the physics of heating and cooling. "Who does science?" was explored in "Women in Science," developed and hosted by Stephanie Bird, MIT neuroscientist.

Universities in the Boston area were able to use the Mass LearnPike to bring their research on education directly to teachers and administrators. David Perkins, Harvard Project Zero, and Robert Swartz, UMASS/Boston, offered strategies for teaching thinking in the content areas. Joe Walters, Harvard, demonstrated



"Teachers are often compared to being in their separate egg-crate compartments.... This is the chance to connect with colleagues, to watch them do what they do.... Teachers need the opportunity to interact with outstanding professionals in the field and learn from them."

Jay Sugarman, host of the "Teacher in Electronic Residence" staff development series Boston Sunday Globe, MA, shown here with Virginia Freyermuth, Duxbury Public Schools.



Faculty

Going Ape

In "Scientist in Electronic Residence," practicing scientists work with students to excite their curiosity about the natural world. Five-week residencies present the scientists as mentors. Middle school students have studied insects, bats, and marine life, and have learned how to make ice cream.

Animal behaviorist Deborah Schilckraut taught students about the relationship between humans and their closest animal relatives in "Planet of the Apes." Students learned about the taxonomy, anatomy, behavior, and conservation of the great apes.



Photos: Mary Lee

alternative methods of assessment. Lesley College presented teachers with "Local History," "Telecommunications in the Classroom," and "Reading Recovery." Pat Campbell, Wellesley College Center for Research on Women, discussed the findings of the AAUW report on the treatment of girls.

Universities also provided faculty for many student programs. Northeastern University offered "HealthPlan," "Get Moving!," "Columbus," "Project SEED," and "Project TEAMWORK," an unusual program designed to raise students' sensitivity to race, ethnicity, and gender issues. Larry Davidson, math chairman at B.U.'s new experimental high school, taught students "Creative Math," while Hu Hohn, director of the Computer Arts Center at Mass. College of Art, presented "Order in Chaos." Charles Willie, Harvard, hosted panels on the meaning of the Rodney King trials.

Faculty List

Selected Developers / Presenters

Marilyn Gardner
Boston Public Schools
Jan Motta
Bristol Community College
Sarah Sutro, artist
Wes Sanders
Underground Railway Theater
Linda Honan
Higgins Armory
Barbara Ward, artist
Trent and Melodie Arterberry, mimes
Martín Espada, poet
Bob Nesson
Nesson Media/Boston
Susan A. Burgess, librarian
Charles V. Willie
Harvard University
Wendy Wilson
Lexington Public Schools
Isa Zimmerman
Acton, Acton-Boxborough Public Schools
Judy Zorfass
Education Development Center, Inc.
Larry Davidson
Boston University Academy
Robert Tinker
Technical Education Research Centers
Fred Stein
The Science Discovery Museum
Duke Dawson
New England Science Center
Roger Payne
The Whale Conservation Institute
Oceanic Research Group
U.S. Army,
Natick RD&E Center
Boston by Foot
Manomet Bird Observatory
Francisca Gonzalez-Arias, professor
Ceasar McDowell
Harvard University
Carla Jentz, educator
David Dockterman
Tom Snyder Productions
John Nelson
Northeastern University

Marilyn Cairns
Northeastern University

Robin J. R. Blatt
Co-Investigator,
MCET's "THGP"

Lee Riethmiller
Intercontinental Foreign
Language Program

David Harrison,
educational consultant

Uta Gugg
The Goethe-Institut Boston

Paul E. Dubois
Youth Sports Institute
Bridgewater State College

Rebecca Corwin and
Angeline Ferris
Lesley College

Gary Rosen, musician

Mary Churchill
Cranberry Puppets

Studebaker Movement Theater

Deborah Henson-Conant,
musician

Boston Children's Theatre

Martha Armstrong Gray
Dance Collective

Cornell Coley
Dance Umbrella

Douglas Zook
Boston University

Edmund R. Mahoney
Mass. Middle Level
Administrators

Richard Carter
Bolt Beranek and Newman

Jeff Loeb, educator

JoAnn Greene and Cathy Côté
Lexington Public Schools

Joan Reede
Harvard Medical School

Boston Lyric Opera Company

Hubert Hohn
Mass. College of Art

Jack Luskin
Toxics Waste Reduction
Institute
UMASS/Lowell

Joe Walters
Harvard Project Zero

Diana Nunnaley
Chapter 1 Computer
Cooperative Center

Lin Dawson
Project TEAMWORK
Center for the Study of
Sport in Society
Northeastern University

Sandra Spooner
Cambridge Public Schools

Stacy Miller
Mass. Audubon Society

Donna Fernandes
Franklin Park Zoo

Winifred Sanchez Eisan
Harvard Museum of
Comparative Zoology

Richard Wheeler,
environmentalist

Deborah Schildkraut, scientist

Paul Evans
The Children's Museum

Onye Onyemaechi, musician

The Children's Museum

Wang Center for the
Performing Arts

Katy Abel, journalist

Erik Butler
Bay State Skills Corp.

Lawrence Langer
Simmons College

Irene Fountas
Lesley College

Beverly McCloskey
NESDEC

Patricia Campbell
Wellesley College Center
for Research on Women

Priscilla Douglas
Secretary of Consumer Affairs
and Business Regulations

David Perkins
Harvard Project Zero

Robert Swartz
UMASS/Boston

Maureen Brown Yoder and
Marie Gannon
Lesley College

Carolyn Markuson and
Norman Finkelstein
Brookline Public Schools

Jay Sugarman
Brookline Public Schools

Christian de Robert
The French Library and
Cultural Center in Boston

Barbara Eve, consultant

Dan Schwartz
USS Constitution Museum

Ron Fitzgerald
Minuteman Regional
Vocational-Technical
High School

Neil Clark
Mass. Water Resources
Authority

Stephanie J. Bird
Massachusetts Institute of
Technology

Seymour Simckes, author

Paul Erickson
New England Aquarium
Haystack Observatory, MIT

Dan Cheever
Mass. Higher Education
Assistance Corp.

Contemporary Great Minds

Howard Zinn

Sissela Bok

Howard Gardner

Stephen Jay Gould

Nobel Prize-winners

Dudley Herschbach

Rosalyn Yalow

Joseph E. Murray

Jerome I. Friedman

Teacher in Electronic Residence

Mary Kate Fonten

Maureen Harris

Ron Adams

Fran Wacht

Alfred Benbenek and

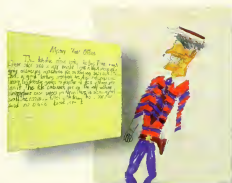
Jeanette Spinale

Margaret Watson

Richard Aieta

Steven Levy

Bruce Dean



"'Mystery Writers' was fabulous! My group was
thrilled, motivated, and very active."

"Mystery Writers"

Jackie C. Jette, Nantucket H.S., Nantucket MA

*Massachusetts
Corporation for
Educational
Telecommunications*



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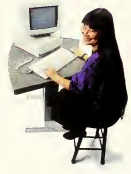
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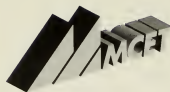


Educational



Telecommunications





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A quasi-public agency of
the Commonwealth of
Massachusetts



William F. Weld
Governor

Argeo Paul Cellucci
Lt. Governor

Access to Innovations in Telecommunications

Established by the Legislature in 1982, the Massachusetts Corporation for Educational Telecommunications (MCET) provides telecommunications services through multiple technologies to students and educators in Massachusetts and 22 states nationwide. This includes daily satellite broadcasts, computer networking for e-mail and links to the Internet, videotapes, and videodisks, as well as technical training and content support for participants. Through collaborative efforts with the Massachusetts Department of Education (DOE) and the Executive Office of Education (EOE) and other significant partnerships, the Cambridge-based corporation serves a broad base of educational institutions, nonprofit agencies, government services, and businesses.

MCET Community

Pictured on the cover and throughout the Annual Report FY94 are people representing the entire MCET community, including staff, Mass LearnPike presenters, research project participants, K-12 students and teachers, school superintendents, business customers, agency administrators, community-based organization executives, and other collaborators.



Telecommunications for Massachusetts

In 1982—before we adopted such commonplace terms as "e-mail," "voice mail," and "interactive technology;" preceding "user-friendly" and "interactive technology"—Massachusetts Corporation for Educational Telecommunications (MCET) received its first legislative funding to take advantage of the economies and efficiencies that were certain to come out of the intensive research and development taking place in the communications field. It was not clear at that time what the future of telecommunications would look like, but it was certain that Massachusetts would develop extensive resources for the benefit of the people of the Commonwealth.

MCET has been keeping pace by building its networks in response to the telecommunications needs of education, businesses, and government. We cannot rely on technology to answer all the needs, but as knowledge proliferates and rapid advances in technology emerge faster than we can assimilate them, we know that technology can help.

We are proud that Massachusetts is one of the states with the most advanced telecommunications systems for education, and that with the Mass Ed Online LearnNet we are continuing to keep pace. This represents an important step for all of us, but our future depends on meeting the challenge of moving ahead together—through collaboration, resource sharing, and cooperative commitment.



John G. Flores, Ph.D.
Executive Director

Richard J. Snyder, Esq.
Chairman of the Board

*P*romising Breakthroughs in Technology



Last year continued significant gains for MCET and, in turn, for the Commonwealth of Massachusetts.

As Board Chairman it is gratifying to witness MCET's steady growth. Legislative support continues to reflect the respect for the agency's accomplishments, and we are grateful to the Governor and our legislative leaders for their support. Grants from government, foundations, and corporations bring further distinction to the corporation. At the same time increased membership and program registrations speak to the loyalty of educators throughout the Commonwealth and across the country.

Public perception of distance learning and telecommunications as a whole has shifted from that of novelty to that of convention. We have come to expect that technology will be part of our daily life, and we have become used to the immediacy of response possible through the advent of satellite and computer communications. What sets MCET apart in the field of distance learning is that in addition to utilizing proven methods the agency has taken an innovative approach to content, technology, and pedagogy. MCET has added a rich mix of content, accomplished presenters, and multiple technology applications that teachers, students, and learners of all ages have come to rely on.

Richard J. Snyder, Esq.
Chairman of the Board

MCET's success in FY94 can best be measured in terms of the expansion and strengthening of its considerable telecommunications links. Through a variety of technology applications MCET reached K-12 and higher education audiences with vital programming on the Mass LearnPike and provided new opportunities for enhanced communications among professionals on the Mass Ed Online LearnNet.

The news is full of stories about breakthroughs in technology that promise powerful linkages supporting efficiency, productivity, and collaborations. MCET has been making news in Massachusetts, subscriber states, and communities since 1990 bringing the advantages of telecommunications into classrooms; into the offices of curriculum specialists, superintendents, and principals; and into homes and community-based organizations through satellite transmission, computer networking, videoteleconferencing, fax, modem, telephone, and videodisk.

The good news is that education is benefiting as distance learning has become a primary source of school curricula and computer networking a dependable information resource and meeting place for educators. It has been my pleasure to join MCET's committed staff in helping our constituents make the most of the available telecommunications resources in the service of education, government, and business.

John G. Flores, Ph.D.
Executive Director



Program and Research Support

NASDC/Project Co-NECT with BBN

U.S. Department of Commerce
PTFP Planning Grant

National Institutes of Health
*The Human Genome Project:
Exploring the Scientific and
Humanistic Dimensions*

Fund for Innovation in
Education, United States
Department of Education
*Project TIER
(Teacher in Electronic
Residence)*

Annenberg/CPB Project/Harvard
Center for Astrophysics
Misconceptions in Science

National Science Foundation/
National Endowment for the
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Aspects of Environmental Policy
Making*

Millipore Corporation
Foundation
Devoted to Science

Educational Funds/Essex
Community College
It's Sedimentary (geology)

National Science Foundation/
BBN for Testbed
Community of Explorers

Kauffman Foundation,
Center for
Entrepreneurial
Leadership
An Income of Her Own

Arthur D. Little, Inc.
FirstMath

The National Environmental
Education & Training
Foundation, Inc.
Envirologic

Center for Global Partnership
Japan Today

Raytheon Company
Creative Physics

USDE Star Schools
The Learning Community

NEC Foundation of America
Creative Physics

Times Mirror, Inc.
Scientist in Electronic Residence

The Learning Community

In conducting The Learning Community project, MCET drew on its extensive resources and relationships with nationally recognized education providers and organizations. Among the groups that partnered with MCET on this project were Bristol Community College, the Center for Children and Technology, Education Development Center, Instructional Systems, Inc., Edcentric, State University of New York, Talcott Mountain Science Center, and Tom Snyder Productions.

The Learning Community instructional programming was delivered through the Mass LearnPike educational satellite network, as well as through a variety of other innovative technologies. Community sites in Boston, Hartford, and New York City are linked via PictureTel systems for two-way video teleconferencing.



Funding Support



The Learning Community School-Community Demonstration Sites

Boston, MA

Boston Public Schools
La Alianza Hispana
Archdiocese of Boston Schools
East Boston Harborside
Community Center
El Centro Del Cardinal
Haitian Multi-Service Center
Jamaica Plain Community Center
Quincy School Community
Council
Roslindale Community Center
United South End Settlements,
Harriet Tubman House

Hartford, CT

Hartford Public Schools
Hartford Public Access Television
La Casa de Puerto Rico
South End Community Services
Talcott Mountain Science Center

New York City, NY

Center for Children and
Technology
DeLaSalle Academy
Franciscan Community Center
Holy Name School
New York City Public Schools
Playing to Win: The Harlem
Community Computing Center



Since 1982 when the Massachusetts Corporation for Educational Telecommunications was established to build and operate telecommunications networks for the Commonwealth, MCET has received its major operational funds through the state Legislature.

Corporate and Foundation Grants

Numerous grants from diverse funding sources to support educational program production and research projects include corporations, government agencies, and foundations. In FY94 funders included United States Department of Commerce, United States Department of Education, National Institutes of Health, Center for Global Partnership, Annenberg/CPB/National Science Foundation, NEC Foundation of America, Millipore Corporation Foundation, NYNEX, Raytheon Company, Arthur D. Little, Inc., Kauffman Foundation, NEEFT, and Times Mirror, Inc.

This support, along with significant funding through the United States Department of Education Star Schools program, has made it possible for MCET to operate its own production studios and uplink facility, from which it produces and transmits hundreds of hours of programming over the Mass LearnPike educational satellite network.

The Learning Community (TLC)

The Learning Community project, supported by a United States Department of Education Star Schools grant, entered its implementation phase in FY94. Three communities participated in The Learning Community as demonstration sites—Boston, Massachusetts; Hartford, Connecticut; and New York City.

Among the organizations involved in the School/Community partnerships were public and parochial schools, centers for adult and community education, human service agencies, cable public access stations, local businesses, and technical assistance providers.

The Learning Community provided technical support to these teams and their communities through a range of activities, including workshops, summer institutes, electronic mail, meetings via videoconferencing, interactive teleconferences, and site visits. School/Community teams worked with MCET staff to select innovative programming from the extensive menu of new and existing programs and to develop plans that incorporated technologies and provided expanded educational opportunities for all learners.

**Mass LearnPike Programs
1993-94**

K-12

Ancestors: A Multicultural Experience
 Artist in Electronic Residence
 Children's Authors and Illustrators
 Conflict Resolution
 Creative Math
 Creative Physics
 Electronic Field Trips
 España Diversa
 Get Moving!
 Great Minds
 The Human Genome Project:
 Exploring the Scientific and Humanistic Dimensions
 Japan Today
 Knowing Our Place: Citizenship in a Technological Age
 Komm mit nach Deutschland
 Learning through Drama
 Learning to Lead
 Mass Performance
 Mystery Writers
 New England Coastlines
 Opera for Children
 Order in Chaos
 Project TEAMWORK
 Quintalingual 7
 Scientist in Electronic Residence
 Seasons at Drumlin Farm
 Skills for a Lifetime
 Special Events

New England Children's Film Festival
Coast to Coast
An Income of Her Own
Bridge Between Cultures
Rodney King: Civil Rights on Trial

The European Community
 Starting School
 Storytelling
 Student Forums
 Tour de France
 TQM in Higher Education
 USS Constitution
 Vocational Education:
 New Directions
 Women in Science
 Writing Workshop



Adult/Parent

Adult Education
Adult Basic Education (ABE)
English as a Second Language (ESL)
General Education Diploma (GED)
 Creating Learning Communities
 Financial Aid
 HealthPlan
 The Human Genome Project:
 Community Forum
 Middle School Issues
 Putting It All Together: Violence in Our Schools
 Starting School
 Together Making a Difference

Mass LearnPike Programs



Various sources of support have made it possible for MCET to develop and broadcast innovative programming in a live, interactive medium, augmented with print materials and interaction through telecommunications.

Fall 1994 marked the beginning of the fifth broadcast year for MCET's educational satellite network, the Mass LearnPike, bringing learners of all ages together from widespread locations for live interaction and introducing the possibility of new relationships with peers, teachers, performers, and distinguished leaders in government, education, and business.

During FY94, program design focused on serving the Common Core of Learning, including staff development modules for in-service and pre-service educators. Programs cover English/Language Arts, Foreign Language, Science and Math, History/Geography/Culture, Citizenship and Civics, and the Arts in conformity with emerging national standards and Massachusetts state frameworks.

MCET produced and transmitted a variety of educational broadcasts for K-12 education, higher education, and staff development. Throughout the academic year MCET provided hundreds of hours of live, interactive broadcasts from its production facilities in Cambridge, along with course materials for teachers and students complementary to each program series. Every weekday the Mass LearnPike offered a full schedule of original programming and taped rebroadcasts to all the school districts in Massachusetts and school districts in 22 other states.

Eighty-five percent of the school districts in Massachusetts are members of the Mass LearnPike. Massachusetts school districts receive an equipment package consisting of a steerable, programmable satellite dish; a 27" monitor; a VCR; and a portable, cordless telephone for live, interactive participation in one-way video, two-way audio programs. Through educational access outlets, cablecasts link homes and community institutions, as well as connect multiple schools within a school district for Mass LearnPike broadcasts.

National subscribers supply their own equipment and are entitled to Mass LearnPike program services only.



Members and subscribers may register for as many programs as they can use. Hands-on materials and study guides are developed in concert with program design and are sent to registered sites prior to broadcasts. Curriculum connections have been articulated for educators to more fully integrate programming into curriculum requirements. Participants can engage with presenters by phoning the audiobridge and through time-shifted communications via the Mass Ed Online LearnNet.

Staff Development Programs 1993-94

Administrators

Administrators' Forum
Conversations with the
Commissioner of Education
Conversations with the Secretary
of Education
Creating Learning Communities
Mass LearnPike Superintendents'
Advisory Committee
Middle School Issues
Perspectives on Elementary
Education
Putting It All Together: Violence
in Our Schools
Together Making a Difference

Forums on Education

Creating Learning Communities
Mass Ed Online
Middle School Issues
Perspectives on Elementary
Education
Putting It All Together: Violence
in Our Schools
Teachers' Forum
Together Making a Difference

New Technologies

Mass LearnNet: Basics
Mass LearnNet: The Internet
Middle School Math Inquiry
Technology in the Curriculum
Telecommunicate!
Videodisks in the Curriculum

Teaching Practices

Adult Education

Adult Basic Education (ABE)
*English as a Second
Language (ESL)*
*General Education
Diploma (GED)*

Authentic Assessment ***Devoted to Science***

*Sound, Magnets,
Chemistry, Bubbles,
and Colors*
*Machines, Flight, and
Pendulums*
Envirologic

Geology ***Middle School Math Inquiry*** ***Project PALMS***

FirstMath
Stellar Math
Project SEED

Teacher in Electronic Residence ***Teaching Thinking in the Content Areas*** ***Theme Teaching***



Staff Development



Most school districts appreciate the obvious advantages of distance learning and telecommunications for bringing valuable in-service programs to teachers and administrators. Even with limited resources school districts can offer high quality, high interest staff development programs without incurring additional travel expenses or time off-site.

The focus of Mass LearnPike staff development has been on providing cost-effective, pedagogically sound approaches in coordination with emerging national standards and state curriculum frameworks. MCET is committed to expanding its menu of professional development trainings to assist both pre-service and in-service teachers in fulfilling the requirements for ongoing recertification as required under the Education Reform Act. Professional development services will include selected programs to assist districts in developing local recertification plans by offering continuing education units (CEUs) or professional development points (PDPs).

Programs include issues for administrators, as well as extensive offerings for teachers. The array of programs features extensive telecommunications training including computer networking, access to the Internet, exploring multiple technologies, the integration of technology and education, and introduction to the Mass Ed Online LearnNet.

School districts receive the benefits from corporate, foundation, and government funding through MCET's innovative programming and research projects. Teachers involved in several grant-funded projects participate in intensive teacher workshops emphasizing technology training and content support. Workshops range from one-day-long to week-long events, typically held in college settings.

For example, *The Human Genome Project* holds a week-long Summer Institute for classroom teachers who come from several states to meet with project staff, meet new colleagues, and prepare for using the program series with high school students; and *The Learning Community*, Star Schools project, brought together educators from schools and community-based organizations to offer technical assistance and support and introduce them to effective uses of Mass LearnPike programs and to the advantages of the Mass Ed Online LearnNet.

To support local technology planning required for statewide education reform, MCET's program strategy, developed with the assistance of the Switched-on Classroom Project of the Mass Software Council includes programs to assist district administrators in creating their technology planning teams, and to assist teams in developing their plans. A range of Mass LearnPike technology training professional development programs and multiple technology curriculum-based student projects in each grade level have been identified to support these efforts.



Introducing the Mass Ed Online LearnNet

As described in Mass Ed Online and the Massachusetts Information Infrastructure plans, the new computer network will serve as a point of presence in every school district in the Commonwealth.

One of the long-term benefits of the institution of the Mass Ed Online LearnNet is that school districts will begin to focus on

their local infrastructures for telecommunications and examine their links with community agencies, such as libraries and government offices, in preparation for the imminent arrival of desktop communications. Over time, MEOL will provide data, voice, and video links to the schools.

MEOL trainings will take place at five regional centers across the state. Each superintendent will designate a local facilitator who will receive the initial training from MCET and who will provide training, in turn, at each school building.



Mass Ed Online LearnNet (MEOL)



During its second year of operation the Mass LearnNet computer network became so popular with Massachusetts educators that demand for service outstripped capacity. As the number of accounts swelled during spring 1994, MCET began to collaborate with other key working groups in telecommunications and education to set priorities and determine solutions for the next phase of the statewide computer network for educators.

As the first implementation of Mass Ed Online the network supports the technological aims of the Education Reform Act.

Efforts among MCET, the Massachusetts Department of Education (DOE), and the Executive Office of Education (EOE) resulted in the introduction of the Mass Ed Online LearnNet (MEOL), a new computer network serving the needs of all the schools in Massachusetts. The fact that the Massachusetts Educational Computer Network (MECN) will furnish transport mechanism to the Internet indicates a strong commitment to exploring the mutual telecommunications interests of both K-12 and higher education.

Driven by a primary need for direct, immediate communications, MCET provides the infrastructure for telecommunications through MEOL connecting the school districts with the DOE for administrative reporting, conferencing, and access to the Internet. For example, biweekly DOE information mailings will be replaced by instant electronic communications in response to DOE administration and finance inquiries.

Operated by MCET, the first phase of MEOL links education professionals, including Massachusetts school district superintendents, business managers, and principals. School districts will receive teacher accounts on an equitable basis based on pupil enrollment.

Developed on a UNIX operating system based on a World Wide Web paradigm, the server fits four terminal emulation types: Macintosh, Apple II, DOS, and Windows; and two full Internet clients: Windows and Macintosh. The Mass Ed Online LearnNet will link with both MOSAIC and LYNX clients.

The network will automate the information transfer process and provide Internet access. To serve the mandates calling for the establishment of curriculum frameworks in subject areas, DOE will post the developing state curriculum framework requirements of the core curriculum and set up newsgroups with moderators to encourage dialogue and conferences on current issues.

Through a gopher, Mass LearnPike members will continue to register for and evaluate satellites programs, send e-mail, and participate in conferences.



Clients

Affinity VideoNet
Amoco
Annenberg Institute for
School Reform
Arnold Advertising
Avid Technology
Boston University
CSPAN
Cambridge Energy Research
Conference Center
Dana-Farber Cancer Institute
DuPont
GBH Productions

Goldman Sachs
Lehigh University
Link-VTC
Massachusetts Department
of Education
Massachusetts Department
of Employment and
Training
Massachusetts Office of
Tourism
Massport
McDonald's
MedEdNet Satellite Network
Merrimac Education Center



National Science Center
New England Satellite
Systems
New England Technology
Group
News Broadcast Network
New York Public Library
Owens Corning
Prince William County
Schools, Virginia
Rand Corporation
University of Massachusetts
University of Wisconsin
VideoBridge International
Worcester Polytechnic
Institute

*T*elecommunications Services



MCET Satellite and Videoconference Center

MCET's Satellite and Videoconference Center offers a wide range of services to business, education, nonprofits, and government. Clients can rent facilities, engage production services and receive technical assistance on an occasional or ongoing basis.

Located in Kendall Square in Cambridge the Satellite and Videoconference Center provides

PictureTel worldwide videoteleconferencing

Live television broadcasting from two studios

Video production

Satellite uplink and downlink

Audiobridging

Mobile production vehicle with satellite uplink

MCET has developed several public/private technology partnerships, for example:

- VideoBridge International of Cambridge established a public videoconferencing facility in Moscow with MCET as the hub of their network in the United States.
- Affinity VideoNet (Essex, MA) and Link VTC (Boulder, CO) operate VLink, a service that bridges educational videoconferences available via satellite through PictureTel equipment.

The capabilities developed with MCET's technological infrastructure have been used to support Mass LearnPike programming. Students and teachers participating in programs have been able to meet their peers by two-way video through the integration of satellite and videoteleconferencing technologies. PictureTel links have brought audiences together from sites across the United States, Japan, France, Canada, and Spain.



A New Vision

The most valuable skills that will be required of workers in the next century include the ability to use computer, video, and other communications technology to get their jobs done.

Research indicates that technology actually motivates students to learn in many ways. For example, coming in contact with new communities of learners awakens students to new possibilities and new resources. Using technology can broaden and enrich students' education, thereby increasing their value in the workplace—for their own benefit and for the benefit of society.



Looking to the Future



MCET will continue to play a key role in the future of telecommunications for education, government, and industry by providing technology solutions and access to technology.

Massachusetts Information Infrastructure (MII)

MCET has been charged with building the Massachusetts Information Infrastructure (MII), the state's telecommunications connection to the National Information Infrastructure (NII) emphasizing extensive services for education. With support from the United States Department of Commerce, the phone and cable companies, as well as state agencies and all schools will be linked to the information superhighway. The system will deliver video, voice, data, and graphic images to the desktop in the near future.

Mass LearnPike/Mass Ed Online LearnNet

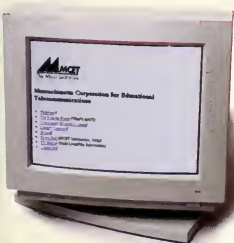
Programming will be developed to further the aims of Department of Education curriculum frameworks as well as national standards in subject areas. MCET expects to broadcast educational satellite programs to all schools and school districts in Massachusetts and to reach into every state across the nation with interactive programs via the Mass LearnPike.

The operation of the Mass Ed Online LearnNet computer network will be coordinated with Mass LearnPike satellite programming for both pre-service and in-service professional development for teachers. The next phase of implementation will include accounts for teachers to provide access to the Internet, conference areas, and e-mail.

HealthLinks

HealthLinks, MCET's third Star Schools award from the United States Department of Education will use telecommunications and other technologies in schools and community-based settings to help at-risk adolescents and young adults access the resources and develop the skills necessary for social, economic, and physical well-being in developing health, literacy and work readiness skills. Using an approach that combines multiple technologies, including satellite and computer networks, desktop videoconferencing, interactive videodisks, and CD-ROM, **HealthLinks** will work with 34 demonstration sites in five major urban centers: New York City, Washington, DC, Hartford, Connecticut, and Boston and Springfield, Massachusetts.

HealthLinks has organized a Telecommunications Partnership of leading health and educational organizations—public, private and parochial schools; community-based organizations, as well as public access television, museums, institutions of higher education, and businesses and corporations.



MCET Awards and Recognition

International
Teleconferencing
Association (ITCA) for
The Learning Community
*Outstanding Teleconferencing
Application, 1994*

International
Teleconferencing
Association (ITCA) for
The Learning Community
*Outstanding Achievement for
Educational Program/Distance
Learning, 1994*

United States Department
of Education
*Star Schools grant for
HealthLinks, 1994*

United States Department
of Education
*Star Schools grant for
The Learning Community,
1992-1994*

United States Department
of Education
*Star Schools grant for
Reach for the Stars,
1990-1992*

Telecom
*Award for Best Distance
Learning Network, 1992*

United States Distance
Learning Association
*Award for Outstanding
Contributions to Distance
Learning, 1991*

Mass LearnPike Program Presenters and Guests

Katy Abel
Gretchen Adams
Stuart Altman
Dr. John Anderson
Robert Antonucci
Trent Arterberry
Melodie Hicks Arterberry
Avi
Angela Barba
Bob Barner
John Barranco
Grace Bartini
Suzin Bartley
Jerry Beck
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Al Benbenek
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Dr. Stephanie J. Bird
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Dr. Linda Brion-Meisels
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Curtis Coleman
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Dr. Anne Dannenberg
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riscilla Sanville
r. Deborah Schildkraut
r. Richard Selove
lare Shepherd
iane Sherlock
eslie Sills
aula Silver
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ene Smalls-Hector
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ynne Winkler
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Annual Report

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